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IN THIS ISSUE

THE paper, Job Stability for White Men, 1939 to 1947, by Miss Lillian Guralnick and Dr. W. Thurber Fales, is one of the reports being published under the series title, Family Studies in the Eastern Health District of Baltimore. A distinctive feature of these studies is that they are based upon data collected in repeated visits to the same families in the District. Thus long-time series of data relating to health and social, economic, and demographic characteristics are being accumulated for periodic analyses of various types. In the present analysis, based upon occupational returns for the same people in 1939 and 1947, the authors examine the extent to which white males in the Study remained in the same jobs throughout the period mentioned. The results, shown by age and occupation, should be of interest to a variety of specialists. Their implications for studies of occupational morbidity and mortality are emphasized by the authors.

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Surveys of morbidity in various population groups have revealed that females have a higher rate of illness than do males. This has been found to be true even for a serious chronic condition with a risk of mortality such as heart disease. On the other hand, males suffer a higher mortality than do females.

Data on illness by sex obtained from a survey of a sample population in the Eastern Health District of Baltimore are presented in the article "Cause of Illness Among Males and Females" by Jean Downes. The incidence of new cases of chronic disease at specific ages in a population observed from

three to five years is a point of interest and is included in the analysis.

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In recent years increasing numbers of individuals in the United States have sought means of protecting themselves against the risks of wage losses and medical expenses due to illness. The rapid growth of insurance plans designed to provide such protection presents a need for data on illness among persons of opposite sex and of different age.

Statistics which may be useful to insurance planners are given in the article "Morbidity Among Males and Females at Specific Ages—Eastern Health District of Baltimore" by Elizabeth H. Jackson. Cases and days of illness are shown for males and females in five age groups. Separate rates are given for disabling and non-disabling illness and for acute and chronic illness. Data are based on results of the morbidity study conducted in the Eastern Health District for the years 1938–1943.

FAMILY STUDIES IN THE EASTERN HEALTH DISTRICT

V. JOB STABILITY FOR WHITE MEN, 1939 TO 1947[1]

LILLIAN GURALNICK AND W. THURBER FALES

IT HAS been widely assumed, that, in our fluid society, an individual's attachment to a single occupation and industry is of short duration. As a consequence, few studies of the mortality of the population of the United States have been made by occupation and industry. It has been taken for granted that a cumulative effect on the length of life could not be associated with the one occupation and industry held at the date of death if a person had made frequent job changes during his lifetime.

The series of censuses of the Eastern Health District in Baltimore, through which the records of the same people made in 1922, 1933, 1936, 1939, and 1947 have been brought together, offer an opportunity to study the attachment of this group to an occupation and industry. This paper is an analysis of that factor for a part of the Eastern Health District census material.

PREVIOUS STUDIES

Mortality studies by occupation are concerned only with a person's attachment to his *regular* occupation, since that is the job reported on the death certificate. Davidson and Anderson (1) found that persons over 55 years of age had averaged 28 years in the occupation which they reported as their regular one and persons of ages 35–54, 16 years. By major occupation group, the average number of years at their regular occupation varied from 18 for proprietors to 10 years for clerks.

[1] From the Department of Biostatistics (Paper No. 260) School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Md.

Acknowledgement is made to the International Health Division of the Rockefeller Foundation and to the Milbank Memorial Fund for financial assistance in support of the family studies in the Eastern Health District of which this study forms a part and to the National Office of Vital Statistics, United States Public Health Service, for its cooperation.

The Philadelphia Labor Market studies, reported by Bell and Palmer (2) while primarily designed to obtain data on unemployment in Philadelphia, also included a question on the length of service in present or last job. The results, tabulated from unpublished data, are shown in Table 1. The median number of years in present or last job increases quite regularly with age for both employed and unemployed men and women. The employed men and women over 45 years of age reported that they had been in their present jobs for an average of 15 and 11 years respectively. Since it is in this age group that most deaths occur, their stability is a strong factor in making occupational mortality studies possible.

An underlying assumption in occupational mortality studies is that deaths tabulated by the occupation reported on the

Table 1. Median length of service of previously employed white persons on present or last job, by age, employment status and sex. Philadelphia, 1937.

Age in Years	Employed				Unemployed			
	Men		Women		Men		Women	
	Number	Median Number of Years	Number	Median Number of Years	Number	Median Number of Years	Number	Median Number of Years
Total Reporting	38,674	7.1	14,513	4.1	7,964	4.5	2,721	2.6
16–19	1,748	.8	1,508	.8	429	.6	456	.5
20–24	4,764	2.2	3,553	2.7	1,108	1.6	742	2.0
25–29	5,077	4.4	2,608	5.4	1,014	3.2	454	3.2
30–34	4,749	7.0	1,649	7.0	807	4.6	251	4.0
35–39	4,565	8.8	1,424	6.9	740	5.9	212	5.7
40–44	4,628	11.1	1,185	7.8	860	6.8	185	6.0
45–49	4,109	12.9	927	9.0	779	8.1	134	7.2
50–54	3,456	14.4	715	11.3	712	10.1	123	7.3
55–59	2,397	16.0	421	11.3	585	11.2	74	8.7
60–64	1,760	19.1	310	13.5	513	12.2	60	7.7
65 and Over	1,421	20+	213	15.6	420	13.8	30	15.0

Source: Unpublished data from Employment and Unemployment in Philadelphia in 1936 and 1937. Part II: May 1937. (Through courtesy of Dr. Gladys L. Palmer of the University of Pennsylvania.) (Reference 2).

death certificate do actually come from the population at risk in that occupation. Dublin and Vane (3) made a study of the correspondence in occupation on two records, the occupation recorded at issuance of a life insurance policy and the occupation recorded at time of death. This comparison was made for 4,198 males over 15 years of age selected at random among the deaths occurring in August, September, and October, 1923. It was not possible to analyze the data by age at death or duration of the policy. Over all ages the authors found that 41.5 per cent of the matched records reported the same occupation. A higher proportion, namely 57.3 per cent, remained in the same industry, although not necessarily in the same occupation. The proportions varied, of course, with the several occupations, ranging from a minimum of 23.7 per cent for saloon keepers and bartenders to 74.6 per cent for tailors.

A small sample, a by-product of another study, yielded some information on the correspondence between census records and death certificates in the Eastern Health District (4). Death records were made available by the Baltimore City Health Department for 308 white men, enumerated in the 1936 Eastern Health District Census, and over 45 at that time, who had died between 1936 and 1947. It was found that on many of the death certificates the occupation was given but the industry was omitted. Comparing occupation and industry on the death certificate and on the census schedule when both items were reported, or occupation only when industry was not reported, the two records agreed for 60 per cent of the men who died between 45–64 years of age, and for 48 per cent of those who died at ages 65 and over. For these two age groups, persons who had retired accounted for 13 per cent and 28 per cent of the paired records. No agreement was indicated in 27 per cent of the records of the men 45–64 years of age, and in 24 per cent for those 65 years and over. The study suggested that with a little extra care, directed towards occupation and industry returns on the death certificates made

by funeral directors, sufficiently accurate information should be available on which to base occupational mortality rates.

Classification of Occupation and Industry

Studies of occupation and industry generally classify the data obtained according to the "Alphabetical Index of Occupations and Industries" issued by the Population Division of the Bureau of the Census. Such indexes have been in use in the Bureau since 1910. The 1948 edition (5) used in this study represents a revision and expansion of the 1940 index based primarily on the experience of the 1940 census. It contains an exhaustive list of occupation terms classified into 220 occupations, which can be combined into eleven major occupation groups. Each of the 220 occupations is identified by a three-digit code, of which the first digit indicates its major group. The industries are divided into 131 groups each identified by a two-digit code. These can be recombined into twelve major industry groups. In the 1939 census of the Eastern Health District 175 occupations and 116 industries of the total categories in the code are represented. The frequency in each of 135 of the occupation classes is less than 25, while in the industry groups only 66 categories contain fewer than 25 persons. Because of the greater variety of occupations reported, the occupation attachment in the District should be less than the industry attachment.

The occupation classification is based on the nature of the work done. Every effort has been made to keep it quite independent of other variables. Because specialized occupations in modern mechanized industries are not well described, and because of the belief that these occupations, while they may differ in task details, are subject to essentially the same occupational environment, an industrial rather than a strictly occupational subdivision of workers has been made in certain groups. These groups are: proprietors, managers, and officials, not elsewhere classified; clerks, (n.e.c.); foremen and inspectors, (n.e.c.); operatives and kindred workers (n.e.c.); and

laborers, (n.e.c.). The concentration of people in the Eastern Health District found in these five groups created a problem in measuring occupational stability, because no occupation change can be measured within the group. In the order named, these groups contain 6.6, 5.8, 2.0, 16.3, and 6.0 per cent of the total employed groups.

The classification gives every job both an occupation and industry code. For those occupations that can occur in only one industry, a further problem in measuring stability arises, since every change in such an occupation is necessarily accompanied by a change in industry. For example, a taxi-driver is always in the industry taxi cab service; physician, lawyer, barber, shoemaker, are occupations that are concentrated so highly in one industry class that they can be coded to their respective classes even when no industry is specified. For these jobs, either both occupation and industry will remain the same, or both will change.

Even though the classification code was designed for household enumeration (6), some difficulties were met in classifying the census returns on the Eastern Health District schedules. The Bureau of the Census has encountered similar problems in the decennial censuses. They have been described in detail in the Census volumes and will only be summarized here.

The most serious problem is that of the vocabulary used to describe manual occupations. The census return is usually made by a housewife, who may not know the worker's exact occupation, or knowing it, may lack the technical vocabulary to describe it accurately. The housewife's vocabulary is still that of the well-known crafts; but craft terms no longer describe the work content of the occupation as it has changed under industrialization. Any worker in the garment industry may be returned as a tailor. He may actually be a cutter, marker, trimmer, baster, finisher, or button-hole maker. The occupational code differentiates between these terms according to the specific task performed within the industry. A man returned in 1939 as a tailor in a shop is classified as *360:65*,

tailor: custom tailor shop, while the same man returned in 1947 as a cutter in a pants factory becomes *496:06,* semiskilled operative: clothing manufacture. In the present study, he is observed to have changed both occupation and industry. Actually, the only change may be the improvement in his wife's vocabulary. Occupations in new industries where the manufacturing processes have no corresponding craft may be described even less accurately.

The housewife's returns for industry are often in general terms. Returns such as "auto co.," "bus co.," "oil co.," are common both in the Eastern Health District and the Federal censuses. The census classification divides "auto co." into manufacturing, service and repair, wholesale sales, retail sales, etc., each assigned to a different class. Edwards (7) has discussed such returns which the Bureau of the Census found most troublesome and indicated the type of entries in which the choice of code would be left to the coder.

The Response Variation

The combination of job, informant, enumerator, coder, and code produces a classification for each job. Through the variations described in the previous paragraphs, it is possible to start with the same job and reach a different classification. This error has been labeled "response variation." In the present study, a person whose job classification is not the same on both censuses is considered to have changed his job. How large a part of this change is "response variation" becomes an important problem. A rough measure of its size can be obtained by enumerating the same population twice within so short a time period that true job changes are negligible.

Such a study was made as part of the census of unemployment in Philadelphia in 1937 (2) in which 5.8 per cent of the households included in the original survey were revisited by a different interviewer within a week or ten days after the first visit. The difference in returns for the occupations of people in the labor force was 21.8 per cent and the difference in the returns for industry, 16.7 per cent.

It seems reasonable to assume that the response variation for the Eastern Health District study population should be much smaller than that found in the 1937 Philadelphia study. The latter covered a random sample of the Philadelphia population at a time when 20 per cent of the population over 16 years of age were unemployed, and it included both white and nonwhite men and women. The present study considers only returns for white males who have been living in the Eastern Health District from 1939 to 1947. The correlation between remaining in the District and remaining on the job is probably high; and variations in description should decrease when, by virtue of long years in the same job, the family has become thoroughly acquainted with the wage earner's work. While it is not possible to estimate the amount of reduction in the response variation, the use of a stable, employed, white male population should bring it below the 22 per cent for occupation and 17 per cent for industry found in the Philadelphia study. The stability determined for the Eastern Health District group will be under-estimated by the response variation which is erroneously interpreted as job change.

Source of Data and Method of Study

The history of the Eastern Health District, the purpose and the nature of the census surveys have been described in "Family Studies in the Eastern Health District I, II and IV." (8, 9, 10). The 1947 census, like the 1939, was planned and supervised by the Department of Biostatistics of the School of Hygiene and Public Health of the Johns Hopkins University. The information was collected on a household basis, the members of a given household being listed on one schedule. Each individual was described in terms of his age, race, sex, marital status, employment status, occupation and industry. The enumerators in both surveys were public health nurses of the Baltimore City Health Department and college students. After the enumeration had been completed, each name returned in 1947 was looked up in a name file which included all the

people recorded on the 1922, 1933, 1936, and 1939 schedules. Where the person was identified by name, age, sex, and residence as the same individual who had been enumerated previously, his 1939 schedule number was entered against his name on the 1947 census schedule. About 50 per cent of the population of Wards 6 and 7 were matched. The present study is limited to the matched population of Wards 6 and 7, the area which made up the original Eastern Health District.

This study compares the employment status, occupation, and industry reported in 1939 and 1947 for each white male who was fourteen years of age or older in 1939, and of course, identified in 1947. Age reported in 1939 was accepted and used throughout the study to avoid the difficulties that would arise when the 1939 and 1947 reported ages did not correspond exactly. The employment status was coded according to the categories established in the instructions to the Eastern Health District enumerators. The population studied was classified by occupation and industry within each employment status group. The "Alphabetical Index of Occupations and Industries: 1948" was used to code industry and occupation. The 1947 schedule and the 1939 schedule for the same individual were coded at the same time. This practice permitted the coder to verify the identification, and, in case of vague entries for occupation or industry, to use the information on both schedules to make the best possible classification. The 1940 Baltimore City Directory, the Maryland State Department of Labor and Industry's List of Industries and Manufacturers in Maryland, 1948, and the 1948 Telephone Directory were also used to clarify the entries. At times, there was no alternative but an arbitrary decision, reached with a knowledge of the Baltimore industrial picture, and used consistently throughout the coding.

Particulars of the Identified Population

A study of a population which has survived in the same area over a period of eight years automatically selects a group by factors which tend to make it stable. Luykx (10) has

analyzed the population common to the Eastern Health District censuses of 1933, 1936, and 1939 to show the relationship between permanence of residence and age, marital status, economic status, home ownership, and family size. The 1947 survivors of the 1939 population exhibit some of the same characteristics found in his study. The proportions of the white male population identified varied with age. While 45 per cent of the total were still in the District in 1947, in the age groups, 35–44 and 45–54, over 50 per cent remained in the District. Married men were more likely to stay in the District than single or widowed men. For all age groups, 50 per cent of the men married in 1939 were identified, while 39 per cent of those who had been single at that time remained in the District.

The census records have not been checked for deaths occurring in Baltimore. Increasing proportions of each age group after age 14 will be lost for possible identification because of death. By applying the resident death rates of Baltimore white males for the average of the years 1939, 1940, and 1941 to the age groups over 35, the numbers expected to survive from 1939 to 1947 were determined. The proportions of the expected survivors identified were, for the age groups 35–44, 45–54, 55–64, and 65–74, 58 per cent, 68 per cent, 70 per cent, and 80 per cent, respectively.

The employment status of the identified men for 1939 is shown in Table 2. The percentage in each class is about the same as the proportions reported for the Eastern Health District population in the 1940 Federal Census (11). The greatest difference appears in the groups "unable to work" and "other and not reported," which include the disabled and the retired. These groups consist of older people among whom most of the deaths occur and would not be expected to be identified in the same proportions as the groups of middle-aged men. The District picture is consistent with the Baltimore City distribution, shown in the same table. Neither the differences between the City and the District, nor the District and the identified population are large enough to be important.

Employment Status	Baltimore 1940[1]		Eastern Health District 1940[1]		1939 Eastern Health District Population Identified in 1947	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
White Males, 14 Years Old and Over	276,120	100.0	18,792	100.0	7,569	100.0
Employed, Except on Emergency Work	203,815	73.8	13,873	73.8	5,996	79.2
Employed on Public Emergency Work	2,959	1.1	237	1.3	107	1.4
Seeking Work	16,196	5.9	1,232	6.5	571	7.5
Engaged in Housework	1,453	0.5	101	0.5	2	0.0
In School	21,563	7.8	1,592	8.5	629	8.3
Unable to Work	14,716	5.3	1,198	6.4	261	3.6
Other and Not Reported	13,143	4.8	558	3.0		
In Institutions	2,275	0.8	1	0.0	3	0.0

[1] Source: Sixteenth Census of the United States. Population Vol. III. The Labor Force.

Table 2. Employment status of white males, 14 years old and over, Baltimore, 1940; the Eastern Health District, 1940; and the 1939 Eastern Health District population identified in 1947.

The major analyses of the number of people remaining in an occupation and in an industry are based on the census returns for the group of identified white males who were employed in both the 1939 and 1947 censuses. Their experiences are studied within the major occupation groups designated by the Census classification. The distribution of their occupations in 1939, compared with the Eastern Health District and the City of Baltimore in 1940, is shown in Table 3. The percentage in any occupation group in the District and in the study population do not differ by more than 3 per cent. The Eastern Health District differs from the City in having a greater proportion of manual workers, skilled, semi-skilled, and laborers,

Major Occupation Group	Baltimore, 1940[1]		Eastern Health District, 1940[1]		1939 Eastern Health District Population Identified in 1947[2]	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Employed White Males, Except on Emergency Work	203,815	100.0	13,873	100.0	5,414	100.0
V. Professional and Semiprofessional Workers	14,097	6.9	661	4.7	167	3.1
0. Farmers and Farm Managers	94	0.1	—	0	2	0.0
1. Proprietors, Managers and Officials	24,262	11.9	971	7.0	400	7.4
2. Clerical, Sales, and Kindred Workers	44,884	22.0	2,353	17.0	878	16.3
3. Craftsmen, Foremen, and Kindred Workers	45,918	22.5	3,747	27.0	1,619	29.9
4. Operatives and Kindred Workers	43,660	21.4	3,853	27.8	1,545	28.6
5. Domestic Service Workers	156	0.1	8	0.1	7	0.1
6. Protective Service Workers	6,283	3.1	1,079	7.8	203	3.7
7. Service Workers, Except Domestic and Protective	6,870	3.4			197	3.6
8. Farm Laborers and Foremen	183	0.1	—	0	2	0.0
9. Laborers, Except Farm and Mine	15,617	7.7	1,140	8.2	355	6.6
Occupation Not Reported	1,691	0.8	61	0.4	39	0.7

[1] Source: Sixteenth Census of the United States. Population Vol. III. The Labor Force.
[2] Employed in both 1939 and 1947 censuses.

Table 3. Distribution by major occupation groups of employed white males (except on emergency work) in Baltimore, 1940; the Eastern Health District, 1940; and in the 1939 Eastern Health District population identified in 1947.

and smaller proportions of professional people, proprietors, and clerical and sales people.[2] The highest proportion of survivors in the District population is found in the skilled worker group and the lowest in the professional class, which confirms Luykx' (10) findings. In the characteristics, age, marital status, employment status, and major occupation groups as reported in 1939, the men who remained in the Eastern Health District from 1939 to 1947 are not essentially different from the population from which they came.

[2] For the text of the present paper, the terms "skilled" and "semi-skilled" workers refer respectively to the major occupation groups, "craftsmen, foremen and kindred workers" and "operatives and kindred workers."

The Time Period Studied

In comparing data obtained for the same population in 1939 and in 1947, any change found between the two years is made up of three factors. The first is the effect of the aging of the population. A man 25 years of age in 1939 is 33 in 1947; he may have changed his occupation by advancing in his trade or business. A 65 year old man may have had to take lighter work in order to remain employed. The second change measured is the effect of labor conditions in the two years selected; and the third is the actual variation in occupational stability (including response variation) that takes place regardless of age and the labor market. Ideally, the study should isolate the third part of the total change; in practice, it cannot be separated from the other two. At best, it can be established that the change introduced by the unusual conditions of 1939 and 1947 is not important.

Over the time period, 1910–1940, Edwards (7) observed that the proportion of the labor force in the professional, clerical, and semi-skilled groups was increasing, while that part composed of proprietors, skilled and unskilled workers was decreasing. The war years complicated, and may even have temporarily reversed this trend. At first glance, it may seem impossible to study stability in occupations from 1939 to 1947. But these dates actually span the period of upheaval. The year 1939 saw the beginning of war production, the sharp rise in the number of persons in the labor force, which reached its peak in 1945, and which, by 1947, had contracted to more normal proportions through the discharge of most of the armed forces, the withdrawal of school-age men, and men of retirement age (12). The diversity of industries in Baltimore favored stability. Plants could convert to war production and reconvert to peace-time products without displacing personnel. It was easily possible for a tailor or a steel worker to remain in the same occupation and industry filling Army orders in 1943 and civilian needs in 1947.

Comparisons of the occupation distribution for both cen-

suses show the similarity of the composition of the labor force in the two years studied. The only consistent difference in all age groups was a decline in the percentage of laborers in 1947 as compared with 1939. Changes found in occupations for individuals should therefore be principally a combination of shifts because of age and personal choice, without perceptible time influence.

Analysis

Stability in a Job by Age

In order to analyze the change in occupation and in industry that occurred from 1939 to 1947 without the additional variable of the differences between "present" and "usual" occupation, only the 5,414 men who were employed in both 1939 and 1947 were studied for measures of stability. Since occupation was not stated for 145 of these, there were 5,269 individuals available for detailed study. The coded returns for 1939 and 1947 were compared mechanically in four ways: (1) the number for whom the occupation and industry coded

Table 4. Comparison by age group of classified occupation and industry reported in the Eastern Health District censuses of 1939 and 1947 for the identified white males employed at both census dates.

Age in 1939	Same Occupation and Same Industry in 1939 and 1947		Same Occupation and Different Industry in 1939 and 1947		Different Occupation and Same Industry in 1939 and 1947		Different Occupation and Different Industry in 1939 and 1947		Total	
Years	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
All Ages[1]	2,212	42.0	538	10.2	928	17.6	1,593	30.2	5,269	100.0
15–24	92	12.7	66	9.1	106	14.6	461	63.6	725	100.0
25–34	454	32.6	144	10.3	281	20.2	513	36.9	1,392	100.0
35–44	696	49.0	163	11.5	262	18.5	298	21.0	1,419	100.0
45–54	690	55.6	114	9.2	208	16.7	230	18.5	1,242	100.0
55–64	238	56.9	44	10.5	61	14.6	75	18.0	418	100.0
65 yrs. and Over	33	55.0	5	8.3	7	11.7	15	25.0	60	100.0
Age Unknown	9	—	2	—	1	—	1	—	13	—

[1] Excludes 145 men whose occupations were reported unknown in either 1939 or 1947.

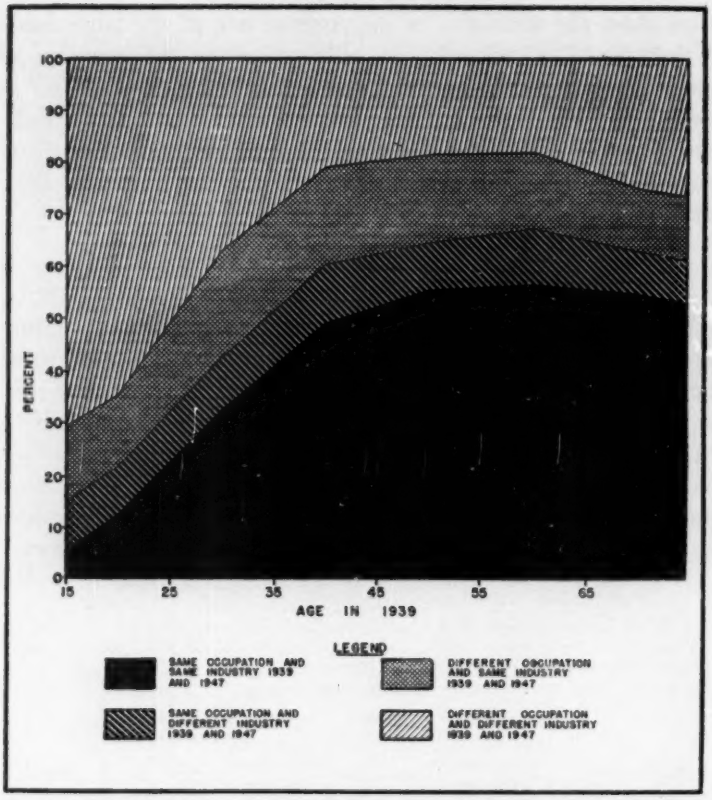

Fig. 1. Job stability by age. Percentage distribution by age in 1939 of identified white males, employed at both censuses, reported in same or different classified occupation and industry, Eastern Health District censuses, 1939 and 1947.

exactly alike in both years were counted, (2) the number for whom the occupation code was the same, but the industry code was different, (3) the number for whom the occupation code was different but the industry code was the same, and (4), the number for whom both occupation and industry codes had changed.

These four types of change are presented in Table 4 by the 1939 age of the men studied and shown graphically in Fig-

ure 1. The stable group who remained in the same occupation and industry in both censuses rises very rapidly with age, reaching a steady proportion of 55 per cent after age 45. Adding the percentage who remain in the same occupation, but not in the same industry, results in an approximate 10 per cent increase at every age. For all ages, occupation attachment thus becomes 52 per cent as compared with 42 per cent found remaining in the same occupation and the same industry. Industrial attachment is even greater, the average for all ages being 60 per cent. Changes in occupation within the same industry may represent promotions. The proportion making this type of change decreases steadily with age from a maximum of 20 per cent at age 25–34 years to 12 per cent over 65 years of age.

STABILITY IN A JOB

The four types of change in job were then tabulated for each classified occupation.[3] The frequency in many of the classified occupations is small. The character of the job changes cannot be observed easily for these classes until the results are summarized by major occupation groups. This has been done in Table 5 and in Figure 2. For some occupations, however, the stability in either occupation or industry is so marked as to be impressive in spite of the small frequency. The classes in which there were more than 10 men in 1939, and which had a stability of at least 70 per cent in either occupation or industry are listed in Table 6.

These major groups in Table 5 are distinguished by the first digit of the occupation code; the first three classes have each been subdivided once, following the practice of the Bureau of the Census in publishing occupation data. The two divisions of the proprietor, manager, and official class are: first, the proprietors, managers, and officials of wholesale and retail businesses, and second, all other people who fall into this major

[3] Appendix Table 1 presents these changes for each classified occupation in which there were 5 or more workers in 1939 who were identified in 1947. The detailed tabulations for all occupations are available in the files of the Department of Biostatistics of the School of Hygiene and Public Health.

occupation group. The professional class has been split simply into professional and semi-professional; the clerks and kindred workers divided into the clerical occupations and the salesmen.

Since age is correlated with stability, the age distribution in each occupation will influence the stability in that occupation. An examination of the ages of people in the occupation groups that are used in Table 5 showed that the clerks, salespeople, semi-skilled workers, and laborers are the younger occupation groups. The data in this table indicate that these are also groups of low stability; but each group shows changes characteristic of the kinds of occupations in it.

Professional people are the group of highest stability. Seventy-two per cent of those in the professions in 1939 were in

Table 5. Comparison by major occupation group in 1939 of the classified occupation and industry reported in the Eastern Health District censuses of 1939 and 1947 for the identified white males employed at both census dates.

Major Occupation Group in 1939	Census Code Number	Same Occ. and Same Ind. in 1939 & 1947		Same Occ. and Diff. Ind. in 1939 & 1947		Diff. Occ. and Same Ind. in 1939 & 1947		Diff. Occ. and Diff. Ind. in 1939 & 1947		Total	
		No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
All Occupations[1]		2,212	42.0	538	10.2	926	17.6	1,593	30.2	5,269	100.0
Professional Workers	V00–V52	79	71.8	8	7.3	5	4.5	18	16.4	110	100.0
Semiprofessional Workers	V60–V94	28	50.9	7	12.7	8	14.6	12	21.8	55	100.0
Proprietors, Wholesale and Retail	156:00–79	177	67.6	28	10.7	10	3.8	47	17.9	262	100.0
All Other Prop., Managers and Off.	1—ex. abve	71	53.0	5	3.7	28	20.9	30	22.4	134	100.0
Clerical and Kindred Workers	200–266	167	32.4	55	10.7	136	26.3	158	30.6	516	100.0
Salesmen	270–298	114	33.0	13	3.8	63	18.3	155	44.9	345	100.0
Craftsmen, Foremen and Kindred Wkrs.	3—	767	48.0	244	15.3	242	15.2	344	21.5	1,597	100.0
Operatives and Kindred Workers	4—	522	34.6	133	8.8	293	19.4	562	37.2	1,510	100.0
Protective Service Workers	6—	132	66.3	8	4.0	21	10.6	38	19.1	199	100.0
Service Wkrs. Ex. Prot. and Dom.	7—	97	50.3	6	3.1	21	10.9	69	35.7	193	100.0
Laborers, Ex. Farm and Mine	9—	57	16.9	31	9.2	98	29.1	151	44.8	337	100.0

[1] Includes 11 farmers, farm laborers, and workers in domestic service.

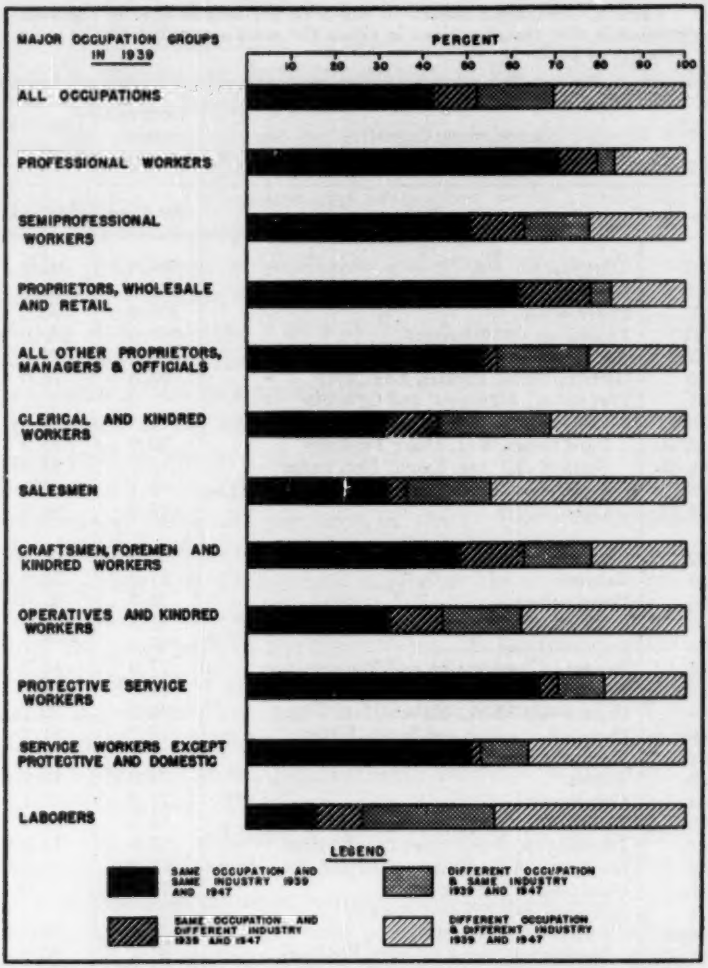

Fig. 2. Job stability by major occupation group. Percentage distribution by major occupation group in 1939 of identified white males, employed at both censuses, reported in same or different classified occupation and industry, Eastern Health District censuses, 1939 and 1947.

the same job in 1947. This percentage is increased to 79 when those people who continue to follow the same profession but in another industry are included. The semiprofessional people,

Table 6. Occupation classes[1] in which 70 per cent or over of the 1939 number in that class remained in either the same occupation or the same industry in 1947.

Occupation Class		Occupation Stability	Industry Stability
Number	Title	Per Cent	Per Cent
V08	Clergymen	90.9	90.9
V26	Lawyers and Judges	100.0	84.6
V30	Pharmacists	100.0	94.4
V32	Physicians and Surgeons	100.0	100.0
V70	Technicians and Assistants, Laboratory	80.0	75.0
130	Officers, Pilots, Pursers, Eng., Ship	62.5	75.0
156	*Proprietors, Managers, and Officials:*		
156:60	Wholesale Trade	71.5	50.0
156:61	Food Stores, Exc. Dairy Products	82.9	78.3
156:65	Apparel and Acc. Stores, Exc. Shoes	72.7	81.8
156:71	Eating and Drinking Places	72.7	65.9
156:V9	Construction	53.3	86.6
222	Mail Carriers	90.9	100.0
300	Bakers	61.9	73.0
304	Boilermakers	72.7	81.8
306	Brickmasons, Stonemasons and Tile Setters	81.8	77.3
318	Inspectors (n.e.c.)	47.4	73.7
340	Painters, Construction and Maintenance	77.3	63.2
342	Paperhangers	61.5	71.8
344	Pattern and Model Makers, Exc. Paper	72.7	72.7
348	Plumbers and Gas and Steam Fitters	77.7	61.1
354	Shoemakers and Repairers (not in factory)	78.1	78.1
360	Tailors	74.8	73.2
364	Upholsterers	71.4	71.4
392	Pressmen and Plate Printers, Printing	64.0	84.0
444	Furnacemen, Smeltermen and Pourers	33.3	71.4
450	Linemen and Servicemen, Tel. and Tel., Power	77.8	88.9
456	Motormen, Streetcar	73.7	84.2
496	*Operatives and Kindred Workers*		
496:06	Apparel and Accessories	59.3	71.7
496:31	Nonferrous Metal Primary Products	41.7	83.4
496:4V	Ship and Boat Bldg. and Repairing	53.4	73.4
496:V9	Construction	64.7	76.4
600	Firemen, Fire Department	80.6	84.8
604	Policemen and Detectives, Government	79.7	83.1
700	Barbers, Beauticians, and Manicurists	92.7	90.9

[1] More than ten people in the 1939 class.

although less stable than the professional, are above the average for all occupations. Examining individual occupations and the changes for these two groups, it was found that doctors, lawyers, clergymen, dentists, pharmacists, and funeral directors showed almost no change in job. Artists in 1939, however, are, in 1947, artists, sign painters, and draftsmen; chemists become chemists and laboratory technicians; draftsmen—draftsmen, engineers, and even a shipyard laborer.

The proprietors of wholesale and retail stores are second highest in stability, 68 per cent remaining in the same occupation and industry. The stability of managers and officials who form the remainder of the group, 1, is about equal to the proprietor group in attachment to an industry, but shows less attachment to an occupation. For example, the proprietors of retail food stores, and of eating and drinking places remained in the same occupation to the extent of 83 and 73 per cent, respectively, while 87 per cent of the proprietors, managers, and officials in the construction business remained in the same industry but only 53 per cent stayed in the same occupation.

Manual workers—the skilled, semi-skilled, and laborers, form the great bulk of the Eastern Health District population. The percentage of each of the three groups remaining in the same job varies directly with the skill required. Forty-eight per cent of the skilled workers, 35 per cent of the semi-skilled, and 17 per cent of the laborers were reported in the same job in both censuses. The proportion of skilled workers remaining in the same industry is about the same as the proportion remaining in the same occupation (63 per cent). For the semi-skilled and laborers, industrial attachment exceeds occupation attachment. Fifty-four per cent of the semi-skilled and 46 per cent of the laborers are found in the same industry, while 43 per cent and 26 per cent respectively remain in the same occupation.

Many of the individual occupations in the skilled and semi-skilled groups are very stable as shown in Table 6. Some of the occupations in these groups may appear to be less stable

in this study than they are in fact because of poor description on the part of the respondent. For example, there are 20 tailors in the clothing manufacturing industry in 1939 who are reported as semi-skilled workers in 1947; and 32 semi-skilled workers in the same industry in 1939 who become tailors in 1947. If these changes are artificial, the total stability in this trade is increased considerably.

Movement within a small orbit of occupations may also be characteristic of certain skills. In the printing trades there is an exchange between 1939 and 1947 returns for compositors, pressmen, press feeders, and lithographers. All trades show an interchange of the skilled trade itself with foremen in that trade, and with mechanics and repairmen in the same industry.

The occupation, *496: Operatives and Kindred Workers, Not Elsewhere Classified* contains 860 of the 1,510 semi-skilled workers in the Eastern Health District. Distinctions within the group can only be made by industry. A man who was coded to *496:06*, a semi-skilled worker in the garment industry in 1939, and *496:17* in 1947, a semi-skilled worker in a chemical industry is recorded as remaining in the same occupation but in a different industry because his occupation classification is the same. Actually, the distribution of the 1939 class, *496*, into the four types of change (same occupation-same industry, same occupation-different industry, etc.), is almost exactly the same as the proportions of the entire semi-skilled group exhibiting these types of change; so that this class does not add an artificial element of stability to the occupation picture as a whole. The distributions of the *496* group in those industry categories in which more than 5 workers were identified in 1939 are listed in Appendix Table 1. The garment industry, printing, the steel and iron industries, auto and aircraft manufacture, meat packing, and beverage products, shipbuilding, construction and laundries each show a sufficient number and stability in the *496* class to lead one to think that these occupations represent distinct skills, obscured by being coded into a miscellaneous class.

The clerical workers behave much like the semi-skilled workers in showing a greater stability within an industry than within an occupation, 59 per cent versus 43 per cent. Fewer salesmen than clerks remain in either the same occupation or the same industry, and again, the industrial attachment reported, 51 per cent, exceeded the occupational affiliation of 37 per cent. The individual occupations in this group illustrate an interesting pattern of job movement. Shipping and receiving clerks, and salesmen for manufacturers and wholesale businesses show an affinity for the industry, remaining either in a selling occupation, or in manual labor in the same industry; while salesmen for retail stores, and clerks in stores are more likely to become proprietors. Insurance agents, bookkeepers, and office workers remain in "white collar" occupations.

The protective service workers rank close to the proprietors of wholesale and retail businesses in job stability. The two dominating occupations in this group are firemen and policemen, of whom about 80 per cent remain in their occupation. Guards and the members of the Armed Forces (the latter arbitrarily placed in this group) reduce the stability of the class as a whole.

Service workers show only 50 per cent remaining in the same occupation and industry from 1939 to 1947. This average is derived, however, from a very high stability for barbers; a moderate stability for bartenders; a low figure for hospital attendants, elevator operators, and waiters; and a zero stability for ushers.

STABILITY OF A JOB VIEWED RETROSPECTIVELY

Ordinarily, in the analysis of the experience of the present population, whether it be for morbidity or for mortality, interest centers upon the answer to the question, "How long has a person been in his present occupation?" rather than "Will he be in his present occupation some years hence?" Approaching these same data by grouping them by 1947 major occupation groups (Table 7), gives slightly different results

from those obtained by looking forward from 1939. Of course, the number who remained in exactly the same occupation and the same industry must be the same as in the previous analysis. But the total number of people within an occupation group will change, increasing where it is an occupation class into which people advance with age, and decreasing where it includes the less skilled jobs. The percentage within any group who have been in exactly the same occupation and industry in both censuses falls off in the augmented groups, and rises in the diminished groups. The rank order of stability in a job (both occupation and industry the same) is still led by the professional group, 62 per cent of whom had been in that work in 1939, followed by the service workers, the proprietors of

Table 7. Comparison by major occupation group in 1947 of the classified occupation and industry reported in the Eastern Health District censuses of 1939 and 1947 for the identified white males employed at both census dates.

Major Occupation Group in 1947	Census Code Number	Same Occ. and Same Ind. in 1939 & 1947		Same Occ. and Diff. Ind. in 1939 & 1947		Diff. Occ. and Same Ind. in 1939 & 1947		Diff. Occ. and Diff. Ind. in 1939 & 1947		Total	
		No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
All Occupations[1]		2,212	42.0	538	10.2	926	17.6	1,593	30.2	5,269	100.0
Professional Workers	V00–V52	79	61.7	8	6.3	10	7.8	31	24.2	128	100.0
Semiprofessional Workers	V60-V94	28	39.4	7	9.9	15	21.1	21	29.6	71	100.0
Proprietors, Wholesale and Retail	156:60-79	177	51.1	26	7.5	48	13.9	95	27.5	346	100.0
All Other Prop., Managers and Off.	1—ex. above	71	33.0	7	3.3	66	30.7	71	33.0	215	100.0
Clerical and Kindred Workers	200–266	167	33.1	55	10.9	119	23.6	163	32.4	504	100.0
Salesmen	270–298	114	44.2	13	5.0	41	15.9	90	34.9	258	100.0
Craftsmen, Foremen and Kindred Wkrs.	3—	767	40.8	244	13.0	383	20.4	485	25.8	1,879	100.0
Operatives and Kindred Workers	4—	522	42.9	133	10.9	199	16.4	363	29.8	1,217	100.0
Protective Service Workers	6—	132	48.0	8	2.9	15	5.5	120	43.6	275	100.0
Service Wkrs. Ex. Prot. and Dom.	7—	97	53.9	6	3.3	6	3.3	71	39.5	180	100.0
Laborers, Ex. Farm and Mine	9—	57	30.1	31	16.4	23	12.2	78	41.3	189	100.0

[1] Includes 7 farmers, farm laborers, and workers in domestic service.

wholesale and retail businesses, the protective service, salesmen, semi-skilled workers, skilled workers, semi-professional, clerical, all other proprietors, managers, and officials, and laborers, who remain last. The percentages that had been in the same industry when viewed from 1947 instead of from 1939, decreased for all groups except the salesmen and semi-skilled workers.

STABILITY IN THE INDUSTRIAL CATEGORIES

The major occupation groups have become accepted through familiarity in the literature. The use of the major industrial groups, while having a longer history in the Federal Census, has not been so common. Tabulating the industry groups of the Eastern Health District employed white males, it is found that 2,278 of the total 5,400 were engaged in manufacturing and 1,006 in wholesale and retail trade. These two industry groups account for more than 60 per cent of the study population. Such concentration defeats the purpose of using the twelve industrial groups in the same way that the major occupation groups were used for analysis.

Turning to the detailed industrial classes, it is found that about half of the 116 groups reported in 1939 contain most of the study population.[4] This limited variety is reflected in the consistently higher number of people appearing in the same industry in both censuses, 60 per cent as against 52 per cent in the same occupation. The individual industrial classes show less variation in stability from class to class than did the different occupations. The most stable group is railroad operation, which kept 90 per cent of the 135 persons recorded in it in 1939. The Gas and Electric Company was second with 83 per cent and the Baltimore Transit Company a close third with 79 per cent. Seventy-five per cent of the 1939 telephone company and telegraph company employees were with those companies in the second census.

[4] Appendix Table 1 presents the comparison of the classified occupation and industry for 1939 and 1947 censuses for each industry category in which there were 5 or more workers in 1939 who were identified in 1947.

Government, which falls into four industry classes, Postal Service, National Defense, Federal Government, not elsewhere classified, and State and local government, n.e.c., does not show a high stability as a whole. The Postal Service is an exception with 92 per cent of its 1939 employees reported there in both 1939 and 1947. The other government categories are subject to classification problems that make it difficult to obtain an accurate count of the number of people in government service. The Census code classifies the functions of Government that are also functions of private industry into specific non-government industrial classes. Road construction, water supply, street cleaning, munitions production are common government functions in Baltimore but none of these code to the government classes. Street cleaner—city, and laborer—city, fall into two different industrial groups as do ammunition loader: chemical shell production, and ammunition loader: Army.

The Federal Census brings together all Government workers by an additional item on the census schedule, class of worker, which is coded along with every occupation and industry return. This item has four divisions: Government worker, working on own account, working for private employer, nonpaid family worker. Unfortunately, this question was not included in the Eastern Health District census. Useful groupings of government workers and of self-employed people who code to a skilled trade rather than to "proprietor" for an occupation are lost to this study. But in this locality, where such functions as street cleaning and water supply are carried on only by the City of Baltimore, this class can be recombined with government. Eleven of the 64 workers in this group in 1939 were returned with "City" as the industry in 1947. When they are added to the 34 returned in "street cleaning and water supply" the stability for this group becomes 70 per cent. This number is almost the same as the 76 per cent found for other City and State functions. For workers who are sometimes designated Coast Guard and sometimes shipyard, or the ar-

senal—Army interchange, there is no way of separating them from private industry employees in those classes.

The use of general terms in describing industry makes further precise industry class analysis difficult. For example, the Bethlehem Steel Company is one of Baltimore's largest employers. It operates two shipyards in the Baltimore area and a steel mill, which is located at Sparrow's Point, along with one of the shipyards. The census return frequently reads "Bethlehem," or "Sparrow's Point" for industry. Since the steel mill is the larger plant, these two returns were arbitrarily coded to *29: Blast Frunaces, Steel Works, and Rolling Mills,* unless the occupation could only take place in a shipyard.

In 1939, 333 men were recorded in steel production, and 82 as shipyard workers. In 1947, 189 of the first group were still in steel production, while 45 were in a shipyard. In the second group, 49 per cent remained in a shipyard, and 17 per cent were reported in steel production. If the two classes are combined for both census dates, 69 per cent remain in either the steel or shipyard category.

The two other iron and steel processing classes, *Tin Can and Tinware Manufacture, and Miscellaneous Iron and Steel Industries* are frequently difficult to distinguish from steel production. The stability in these two groups is 50 per cent and 34 per cent respectively, and is increased by 9 and 15 per cent when shifts to steel production are included.

Aircraft production, printing, construction, wholesale and retail trade combined, and clothing manufacture are large Baltimore industries. The 1939 population reported in these classes were again reported in them in 1947 to the extent of 58, 73, 69, and 72 per cent, in the same order. Retail trade as a whole was more stable than wholesale business. The latter kept 46 per cent of its 1939 people, and lost 15 per cent to retail business. Sixty-six per cent of the retail food store workers and 64 per cent of the restaurant workers remained in the same business, while an additional 10 per cent of each group moved to wholesale or other retail trade. Twenty-one per cent of the

clothing store (or custom tailor shop) workers were reported in the garment manufacturing industry in 1947, and 59 per cent in the original retail class; while 6 per cent of the garment manufacturing employees of 1939 were working in retail clothing stores in 1947. The large interchange between the manufacturing, wholesale, and retail areas of the same business suggest that a combination of these three might be a more workable classification device than trying to distinguish them. A similar situation exists in the exchange between auto manufacturing, filling stations, auto repair services, and retail auto accessory stores. The numbers in these groups are small, but the overlapping is evident. As a whole, the size and stability of the industry classes, when local conditions are used as a guide to their selection and combination, make them useful study units.

STABILITY IN THE MAJOR OCCUPATION GROUPS FROM 1939 TO 1947; AND FROM 1947 TO 1939

The preceding section discusses shifts in the detailed occupation and industry classes. Since the major occupation groups are widely used as a characteristic for demographic studies, it is of interest to see how many men remained in the same group, even though their specific occupation changed. For those workers who moved into another group, the association between group changes is important. The correlation tables (Appendix Table 2) which show the distribution of workers by major occupation groups in 1939 and 1947, present these facts for each age interval.

The diagonal frequencies of each table represent those whose occupations were coded in the same major occupation group at both censuses. When each diagonal frequency is divided by the marginal total for 1939 the quotient is the proportion of workers in a given major occupation group in 1939 who remained in the same group in 1947. If divided by the marginal total for 1947, the quotient is the proportion of the 1947 group who had been in the same major occupation group in 1939.

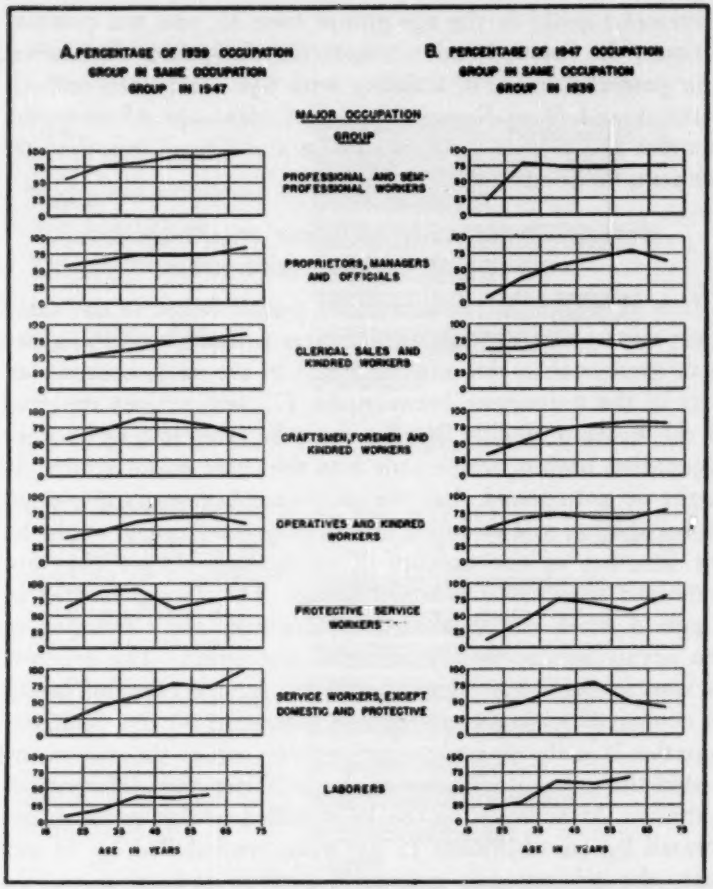
A. PERCENTAGE OF 1939 OCCUPATION GROUP IN SAME OCCUPATION GROUP IN 1947
B. PERCENTAGE OF 1947 OCCUPATION GROUP IN SAME OCCUPATION GROUP IN 1939
MAJOR OCCUPATION GROUP
PROFESSIONAL AND SEMI-PROFESSIONAL WORKERS
PROPRIETORS, MANAGERS AND OFFICIALS
CLERICAL SALES AND KINDRED WORKERS
CRAFTSMEN, FOREMEN AND KINDRED WORKERS
OPERATIVES AND KINDRED WORKERS
PROTECTIVE SERVICE WORKERS
SERVICE WORKERS, EXCEPT DOMESTIC AND PROTECTIVE
LABORERS
AGE IN YEARS
AGE IN YEARS

Fig. 3. Percentage of each age-specific major occupation group of identified white males, employed at both censuses, reported in same major occupation group at succeeding and prior census, Eastern Health District censuses, 1939 and 1947.

These proportions for each age-specific occupation group have been presented graphically in Figure 3.

From Figure 3, it can be seen that for the first two age groups 1939-based indices of stability are not at all similar to the 1947-based figures. However, the amount of movement

decreases rapidly in the age groups over 35, and the contrast between the forward and retrospective viewpoints diminishes. The general increase of stability with age is reflected in both parts A and B of Figure 3, so that after age 45 only the laborers and service workers show a stability of less than 60 per cent, viewed from either direction.

STABILITY IN OCCUPATION GROUP COMPARED WITH STABILITY IN SPECIFIC OCCUPATION

It is obvious that the number of people found in the same occupation group at both census dates will always be as great as or greater than the number found in the same occupation. Part of the movement between the 175 occupations reported in the Eastern Health District must be from one to another occupation both of which code into the same major group. It might be anticipated that the difference between stability in an occupation and stability in an occupation group would be the function of the number of occupation classes that are combined to make each major group. The data presented in Figure 4 show, rather, that the differences are a function of the nature of the jobs included in the group. The greatest increase in percentage remaining in the same occupation group as compared with the percentage remaining in the same occupation is in the clerical and sales group, where the movement within the group itself accounts for a 20 per cent difference in stability. Attachment to the 1939 skilled worker group is increased by an additional 15 per cent, semi-skilled by 11 per cent, the professional, protective service and other service workers by roughly 5 per cent. The laborer and proprietor groups are not changed at all. If the comparison is studied in retrospect, as is done in part B of Figure 4, the increases are of the same order of magnitude for the 1947 groups.

The amount of occupation shift that takes place within the same major occupation group decreases with age. Table 8 shows that the greatest gain made by using occupation group as a measure of stability instead of occupation is in the age

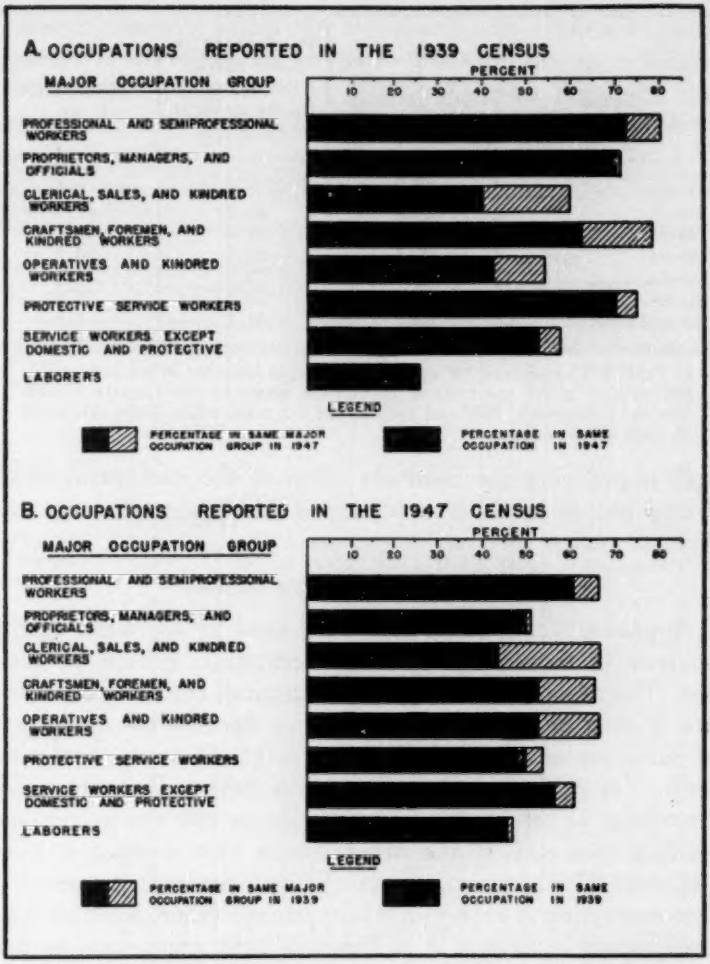
A. OCCUPATIONS REPORTED IN THE 1939 CENSUS
MAJOR OCCUPATION GROUP
PERCENT
10 20 30 40 50 60 70 80
PROFESSIONAL AND SEMIPROFESSIONAL WORKERS
PROPRIETORS, MANAGERS, AND OFFICIALS
CLERICAL, SALES, AND KINDRED WORKERS
CRAFTSMEN, FOREMEN, AND KINDRED WORKERS
OPERATIVES AND KINDRED WORKERS
PROTECTIVE SERVICE WORKERS
SERVICE WORKERS EXCEPT DOMESTIC AND PROTECTIVE
LABORERS
LEGEND
PERCENTAGE IN SAME MAJOR OCCUPATION GROUP IN 1947
PERCENTAGE IN SAME OCCUPATION IN 1947
B. OCCUPATIONS REPORTED IN THE 1947 CENSUS
MAJOR OCCUPATION GROUP
PERCENT
10 20 30 40 50 60 70 80
PROFESSIONAL AND SEMIPROFESSIONAL WORKERS
PROPRIETORS, MANAGERS, AND OFFICIALS
CLERICAL, SALES, AND KINDRED WORKERS
CRAFTSMEN, FOREMEN, AND KINDRED WORKERS
OPERATIVES AND KINDRED WORKERS
PROTECTIVE SERVICE WORKERS
SERVICE WORKERS EXCEPT DOMESTIC AND PROTECTIVE
LABORERS
LEGEND
PERCENTAGE IN SAME MAJOR OCCUPATION GROUP IN 1939
PERCENTAGE IN SAME OCCUPATION IN 1939

Fig. 4. Percentage for each specified major occupation group of identified white males, employed at both censuses, reported in same major occupation group and in same occupation at succeeding and prior census, Eastern Health District censuses, 1939 and 1947.

group, 15–24. The gain decreased from 17.9 per cent for this group to 14.1 in the next age interval, and reaches a minimum of 6.0 in the ages 55–64. The large difference at the young

Age in 1939 Years	Percentage in Same Occupation in Both Censuses	Percentage in Same Major Occupation Group in Both Censuses	Difference
All Ages	52.2	63.8	11.6
15–24	21.8	39.7	17.9
25–34	42.9	57.0	14.1
35–44	60.5	70.6	10.1
45–54	64.8	73.7	8.9
55–64	67.4	73.7	6.3
65 and Over	63.3	71.7	8.4

Table 8. Comparison, by age, of percentages reported in the same occupation and in the same major occupation group in the Eastern Health District Censuses of 1939 and 1947 of the identified white males employed at both census dates.

ages is probably the resultant effect of the concentration of young people in those occupations which showed large exchanges within their major groups.

MOVEMENTS BETWEEN GROUPS

Appendix Table 2 has also been used as the basis of the analysis of movements between occupation groups at each age. The numbers in the several sections of the table are small and it must be kept in mind that they describe the experience of survivors of the 1939 Eastern Health District population only. For each row of the appendix tables, the percentage remaining in the same occupation group and the percentage moving into each of the other groups were computed, with the total 1939 group as a base. Table 9 presents the percentages remaining in each group for each age (these have already been shown in Section A of Figure 3), the occupation groups which account for the three largest shifts, with the percentage in each; and the residual left unaccounted for, thus bringing the total for each box to 100 per cent.

The table shows the variation in stability with age and occupation group and the type of movement characteristic of each age-specific occupation group. In the professional and

semi-professional group the movement into other occupation groups is too small for analysis. The proprietors, managers, and officials group does not contain a sizable frequency until age 25–34, when it has already reached a stability of 66 per

Table 9. Percentage of each major occupation group in 1939 reported in specified major occupation groups in 1947 by age for the identified white males employed at both census dates.

Major Occupation Group in 1939	Major Occupation Group in 1947	Age in 1939						
		15–24	25–34	35–44	45–54	55–64	65 and Over	Total
V. Professional and Semi-professional	V—	(57.2)	77.7	83.3	92.3	(90.0)	(100.0)	80.6
	2—	(14.3)	5.3	8.3	0	(0)	(0)	5.5
	3—	(14.3)	9.2	2.8	0	(0)	(0)	6.1
	4—	(7.1)	3.9	0	3.8	(0)	(0)	3.0
	All Others	(7.1)	3.9	5.6	3.9	(10.0)	(0)	4.8
1. Proprietors, Managers, and Officials	1—	(57.1)	65.7	74.8	73.7	74.1	(88.3)	72.5
	2—	(14.3)	11.4	6.5	5.4	7.0	(0)	7.1
	3—	(14.3)	7.1	10.6	11.6	15.5	(0)	10.8
	4—	(0)	10.0	4.1	5.4	1.7	(0)	5.5
	All Others	(14.3)	5.8	4.0	3.9	1.7	(16.7)	4.3
2. Clerical, Sales and Kindred Workers	2—	46.4	55.0	68.8	74.5	79.0	(85.7)	60.0
	1—	10.6	14.9	13.5	10.3	7.0	(14.3)	12.4
	3—	15.4	11.2	9.2	3.4	2.5	(0)	9.8
	4—	14.4	11.2	7.7	6.2	4.7	(0)	9.8
	All Others	13.2	7.7	5.8	5.6	7.0	(0)	8.0
3. Craftsmen, Foremen, and Kindred Workers	3—	58.3	72.2	84.4	82.6	78.9	(60.9)	78.1
	1—	4.7	2.5	4.0	4.2	3.1	(8.7)	3.8
	2—	8.7	4.8	1.5	2.5	2.5	(8.7)	3.3
	4—	18.9	13.2	7.0	7.9	9.9	(8.7)	9.9
	All Others	9.4	7.3	3.1	2.8	5.6	(13.0)	4.9
4. Operatives and Kindred Workers	4—	36.0	47.9	61.6	68.7	70.8	(61.5)	54.6
	1—	7.7	5.5	4.4	2.8	1.3	(0)	4.8
	2—	10.7	9.6	5.2	3.5	6.5	(0)	7.2
	3—	29.4	27.5	23.2	18.8	12.7	(23.1)	24.2
	All Others	16.2	9.5	5.6	6.2	8.9	(15.4)	9.2
6. Protective Service Workers	6—	(62.5)	82.9	85.1	61.4	(73.7)	(80.0)	75.9
	2—	(0)	8.6	1.4	10.5	(10.5)	(0)	6.0
	3—	(12.5)	0	2.7	8.8	(0)	(0)	4.0
	4—	(25.0)	5.7	4.0	12.3	(5.3)	(0)	7.5
	All Others	(0)	2.8	6.8	7.0	(10.5)	(20.0)	6.6
7. Service Workers, Exc. Dom. and Prot.	7—	22.6	45.0	59.7	78.9	(73.3)	(100.0)	57.5
	1—	12.9	5.0	11.6	5.8	(0)	(0)	7.8
	3—	22.6	17.5	7.7	5.8	(6.7)	(0)	11.4
	4—	22.6	7.5	3.8	3.8	(6.7)	(0)	7.8
	All Others	19.3	25.0	17.2	5.7	(13.3)	(0)	15.5
9. Laborers, Except Farm and Mine	9—	6.6	17.4	38.1	36.7	41.9	—	26.4
	2—	11.8	4.0	7.1	1.4	6.5	—	6.2
	3—	30.3	45.4	23.8	22.5	9.7	—	28.5
	4—	36.9	21.3	26.2	31.0	16.1	—	27.6
	All Others	14.4	11.9	4.8	8.4	25.8	—	11.3

( ) = Less than 25 in total occupation group.

cent. This figure increases to about 75 per cent in the next three age groups. The largest movement out of the proprietor class is into the craftsmen group, and the second largest into the clerical and sales group. The latter group does not reach a high stability until after age 45. Twelve per cent of this group in 1939 have become proprietors by 1947, while equal but smaller proportions (10 per cent) have gone into skilled and semi-skilled work.

The close association between the skilled, semi-skilled, and laborer groups is brought out by the group changes shown in the table. By 1947, 56 per cent of the 1939 laborers have gone into an occupation in the skilled or semi-skilled class. The proportion moving into skilled occupations is highest at ages 25–34, and declines rapidly with age. The movement of laborers into the semi-skilled occupations does not show this sharp variation with age. About one-quarter of the semi-skilled workers are reported in skilled trades in 1947, the largest movement occurring in the younger ages. The skilled workers, since they are a group of very high stability, can show little change. Most of the recorded movement is into the semi-skilled class, which, as has been mentioned before, may be actual downgrading, or may be response variation.

Both the protective service, and service workers are groups of small frequency. The protective service workers are quite stable at young ages, but show a sharp drop in the age group 45–54. Perhaps this represents early retirement for policemen and firemen, who then take other jobs. The service workers show no close association with any other group; in 1947, the 43 per cent who made a change moved chiefly to the proprietor, skilled, and semi-skilled classes.

These data show that the movements between occupations are not haphazard. The patterns that are revealed in the eight year period suggest that, with further study, it might be possible to form groups of allied occupations that make up lifetime job sequences. Perhaps such combinations of occupations would make more suitable and more homogeneous

units for analysis in mortality or morbidity studies than the present major occupation groups.

THE RETIRED POPULATION

Studies of mortality or disability are concerned particularly with the population over forty-five years of age, the group with the greatest frequency of deaths and disabilities. An analysis of the occupations of the labor force does not satisfy the needs of such studies completely, since the number of retired and disabled people in the population, who are not included in Census labor force statistics, increases very rapidly after age 45. These may be the people at risk, rather than the employed group. The Eastern Health District censuses asked for the usual occupation of all retired, disabled, and unemployed people. While the numbers of returns are small, they present an opportunity to compare these reports with those of the employed people of the same age.

The employment status of the identified white males in 1939 and 1947 is shown in Table 10. Because of the advance in age of the population, the number of retired people increased from 178 to 588 while the disabled rose from 80 to 123. The high demand for labor in 1947 is reflected in the dis-

Table 10. Employment status reported in the Eastern Health District censuses of 1939 and 1947 for the identified white males.

Employment Status in 1939		Employment Status in 1947								
		Total	Emp	Sch	Ret	Un	Dis	H	Ins	Unk
Total		7,569	6,514	114	588	192	123	4	27	7
Employed	Emp	5,996	5,414	22	360	109	62	—	22	7
Work Relief	WR	107	95	—	7	2	3	—	—	—
In School	Sch	629	494	86	3	40	4	2	—	—
Retired	Ret	178	24	—	147	1	6	—	—	—
Unemployed	Un	571	448	6	51	38	24	1	3	—
Disabled	Dis	80	34	—	20	2	23	—	1	—
Housework	H	2	1	—	—	—	—	1	—	—
In Institution	Ins	3	2	—	—	—	—	—	1	—
Unknown	Unk	3	2	—	—	—	1	—	—	—

Table 11. Comparison of classified occupation and industry reported in the Eastern Health District censuses of 1939 and 1947 for identified white males who were employed in 1939, and retired, disabled, or unemployed in 1947[1]: By major occupation group and by age.

Major Occupation Group in 1939	Same Major Occupation Group in 1947		Same Occ. and Same Ind. in 1939 and 1947		Same Occ. and Diff. Ind. in 1939 and 1947		Diff. Occ. and Same Ind. in 1939 and 1947		Diff. Occ. and Diff. Ind. in 1939 and 1947		Total	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
All Occupations[2]	288	74.8	213	55.3	49	12.7	47	12.2	76	19.8	385	100.0
V. Professional and Semiprofessional Workers	4	(57.1)	3	(42.8)	—	(0)	1	(14.3)	3	(42.9)	7	(100.0)
1. Proprietors, Managers, and Officials	39	75.0	35	67.3	3	5.8	3	5.8	11	21.1	52	100.0
2. Clerical, Sales and Kindred Workers	30	66.7	23	51.1	4	8.9	7	15.6	11	24.4	45	100.0
3. Craftsmen, Foremen and Kindred Workers	119	86.2	75	54.3	33	23.9	11	8.0	19	13.8	138	100.0
4. Operatives and Kindred Workers	33	56.9	27	46.6	3	5.2	12	20.7	16	27.5	58	100.0
6. Protective Service Workers	35	84.6	27	69.2	4	10.3	4	10.3	4	10.2	39	100.0
7. Service Workers Except Protective and Domestic	16	(72.7)	13	(59.1)	1	(4.6)	3	(13.6)	5	(22.7)	22	(100.0)
9. Laborers, Except Farm and Mine	14	(63.6)	10	(45.5)	1	(4.6)	6	(27.2)	5	(22.7)	22	(100.0)
Age in 1939[3]												
45 Years of Age and Over			213	55.3	49	12.7	47	12.2	76	19.8	385	100.0
45–54			57	62.6	6	6.6	8	8.8	20	22.0	91	100.0
55–64			100	53.2	28	14.9	25	13.3	35	18.6	188	100.0
65 and Over			56	52.8	15	14.2	14	13.2	21	19.8	106	100.0

[1] 45 years of age and over in 1939.
[2] Includes 2 men reported as farmers or farm laborers.
[3] Excludes 7 men who did not report an occupation.
( ) = Less than 25 in total occupation group.

appearance of the 1939 work relief classification, the small number of unemployed in 1947, the re-entry into the labor force of some of the men who were retired or disabled in 1939. The small, but obvious interchange between the classes unemployed, disabled, (particularly because of old age) and retired, led to the decision to discuss the retired people in two groups.

The first group is made up of 373 men 45 years of age and over in 1939, who were employed in 1939, and who were retired or disabled in 1947. Twelve persons over 55 in 1939 who were employed in that year but unemployed in 1947 were added, since it was felt that "unemployed" was being used as a substitute for "not voluntarily retired." For the entire group the 1939 return is "present" occupation and industry, while the 1947 return is "usual" occupation and industry.

A smaller group of 248 men over 45 were not working in either census. These men were reported as retired, disabled, or unemployed in 1939 and in 1947. Six men in the 45–54 year age group who were disabled in both censuses, and three of the same age who were unemployed in both censuses were omitted because the six may represent long disabilities, and the three are not old enough to be considered out of the labor force. For the remaining group of 239 men, both 1939 and 1947 returns are "usual occupation."

It will be recalled that 145 of the 5,414 men employed in both censuses were returned with occupation unknown on one of the schedules. In the employed-retired class, 7 of the 392 men had no occupation reported, while in the retired-retired group, 21 of the 239 had no occupation return. The proportion of unknowns in the latter group is significantly different from that found in the group employed in both censuses.

Tabulations similar to those for the persons employed at both censuses were made for the two retired groups, and are shown in Tables 11 and 12. The numbers in each major occupation group were too small to warrant subdivision of any class. Fifty-five per cent of the group working in 1939 reported that they had retired from the same job in 1947. The usual

Table 12. Comparison of classified occupation and industry reported in the Eastern Health District censuses of 1939 and 1947 for identified white males who were not employed at either census date: by major occupation group and by age.[1]

Major Occupation Group in 1939	Same Major Occupation Group in 1947		Same Occ. and Same Ind. in 1939 and 1947		Same Occ. and Diff. Ind. in 1939 and 1947		Diff. Occ. and Same Ind. in 1939 and 1947		Diff. Occ. and Diff. Ind. in 1939 and 1947		Total	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
All Occupations[2]	149	68.3	114	52.3	32	14.7	23	10.5	49	22.5	218	100.0
V. Professional and Semiprofessional Workers	2	(100.0)	2	(100.0)	—	0	—	0	—	0	2	(100.0)
1. Proprietors, Managers and Officials	15	(68.2)	13	(59.1)	2	(9.1)	2	(9.1)	5	(22.7)	22	(100.0)
2. Clerical, Sales, and Kindred Workers	17	(77.3)	14	(63.6)	2	(9.1)	1	(4.6)	5	(22.7)	22	(100.0)
3. Craftsmen, Foremen, and Kindred Workers	57	79.2	39	54.2	16	22.2	7	9.7	10	13.9	72	100.0
4. Operatives and Kindred Workers	27	56.3	20	41.7	7	14.6	10	20.8	11	22.9	48	100.0
6. Protective Service Workers	21	80.8	19	73.1	2	7.7	1	3.8	4	15.4	26	100.0
7. Service Workers, Except Domestic and Protective	1	(20.0)	—	0	—	0	1	(20.0)	4	(80.0)	5	(100.0)
9. Laborers, Except Farm and Mine	9	(47.4)	6	(31.6)	3	(15.8)	1	(5.2)	9	(47.4)	19	(100.0)
Age in 1939[3]												
45 Years of Age and Over			114	52.3	32	14.7	23	10.5	49	22.5	218	100.0
45–54			14	46.7	4	13.3	2	6.7	10	33.3	30	100.0
55–64			29	46.0	10	15.9	8	12.7	16	25.4	63	100.0
65 and Over			71	56.8	18	14.4	13	10.4	23	18.4	125	100.0

[1] 45 years of age and over in 1939.
[2] Includes 2 men reported as farmers or farm laborers.
[3] Excludes 21 men who did not report an occupation.
( ) = Less than 25 in total occupation group.

occupation and industry of the group not working in either census matched in 52 per cent of the reports. These figures are not different from the average of 56 per cent remaining in the same occupation and industry reported for the employed group at the same age. The numbers remaining in an occupation, and in an industry within each occupation group are also of the same order of magnitude in both the retired groups, and in the employed group. There seems to be no major difference from the experience of the employed men at the same age in the census reports of occupation and industry stability for the retired people, with the exception of the poorer returns among the group retired in both censuses.

THE VETERAN POPULATION

There were 1,404 veterans of World War II identified, and working in the Eastern Health District census of 1947. This number is 21.5 per cent of the total employed white male population of 6,517. Almost two-thirds of the veterans were in the age group 15–24 in 1939, and would therefore not be expected to show a high occupation stability. The experience of the 817 veterans who were employed in both 1939 and 1947 is shown in Table 13. When the stability data in this table are compared by age groups with that reported for all employed white males in Table 4, only small differences are found. The stability within each occupation group also parallels that of the entire population of the same age. The interruption in employment, and work experiences in the Armed Forces apparently did not change the veteran's occupation status to any marked degree.

Summary and Discussion

The advantages in social studies of repetitive histories of the same people over a single instantaneous enumeration of an area, have become thoroughly appreciated. Among the Federal agencies, the Bureau of the Census, the Bureau of Agricultural Economics, the Bureau of Labor Statistics, and the Social Security Board have set up different patterns in continuous

Table 13. Comparison by major occupation group in 1939 of the classified occupation and industry reported in the Eastern Health District censuses of 1939 and 1947 for the identified white males employed at both census dates, who were also veterans of World War II.

Major Occupation Group in 1939	Same Occ. and Same Ind. in 1939 and 1947		Same Occ. and Diff. Ind. in 1939 and 1947		Diff. Occ. and Same Ind. in 1939 and 1947		Diff. Occ. and Diff. Ind. in 1939 and 1947		Total	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
All Occupations[1]	166	20.3	83	10.2	131	16.0	437	53.5	817	100.0
V. Professional and Semiprofessional Workers	19	73.1	3	11.5	—	0	4	15.4	26	100.0
1. Proprietors, Managers, and Officials	9	(39.1)	4	(17.4)	4	(17.4)	6	(26.1)	23	(100.0)
2. Clerical, Sales, and Kindred Workers	35	15.6	28	12.5	47	21.0	114	50.9	224	100.0
3. Craftsmen, Foremen, and Kindred Workers	53	31.7	22	13.2	27	16.2	65	38.9	167	100.0
4. Operatives and Kindred Workers	39	14.9	22	8.4	30	11.4	171	65.3	262	100.0
6. Protective Service Workers	5	(38.5)	—	0	1	(7.7)	7	(53.8)	13	(100.0)
7. Service Workers, Except Domestic and Protective	4	13.8	—	0	4	13.8	21	72.4	29	100.0
9. Laborers, Except Farm and Mine	2	2.8	4	5.6	18	25.4	47	66.2	71	100.0
Age in 1939										
All Ages[2]	166	20.3	83	10.2	131	16.0	437	53.5	817	100.0
15–24	51	10.5	51	10.5	73	15.0	311	64.0	486	100.0
25–34	81	31.0	26	10.0	47	18.0	107	41.0	261	100.0
35–44	28	45.9	5	8.2	11	18.0	17	27.9	61	100.0

[1] Includes 2 men reported as farmers or farm laborers.
[2] Includes 9 men over age 45.
( ) = Less than 25 in total occupation group.

sampling, designed to meet their specific needs. Follow-up studies of a selected population are another means of achieving a description of a population characteristic during a time period, rather than at a moment in time.

The series of Eastern Health District population censuses, begun in 1922, share the merits and deficiencies of all follow-up studies. The five censuses taken since that date provide reports on the same characteristics for each individual as often as he was enumerated, so that the change in the characteristic reported can become the variable studied, instead of the change in the population composition of that characteristic, which is described in the usual area enumerations. The physical limitations of the enumeration procedure make it difficult to obtain subsequent histories of all the people who were in the first census of the Eastern Health District series. No attempt has been made for the census as a whole to follow the people who leave the District, so that available records can link the repeated histories only for people who remain in the study area.

The problem proposed at the outset of the study was "Is an individual's attachment to an occupation or industry of long enough duration to make correlation between any personal characteristic—health, illness, mortality—with occupation and industry possible?" The matched records of the same individuals appearing in several censuses make it possible to answer this question. This study has been confined to the 1939 and 1947 census returns for white males of the Eastern Health District who were over 14 years of age in 1939, and who were identified in 1947. The persons studied are a select group who have remained in the District through a balance of forces that would encourage a family to leave an old neighborhood, and forces that would encourage them to stay in the City during a time of expanding job opportunity, war manpower restrictions, and static housing conditions. It should also be remembered that Baltimore increased in population during the war because of the expansion of industry. It was, therefore, possible for residents of the Eastern Health District both to

change their jobs from peace-time to war-time occupations and still remain in the City.

This study has measured *one* change or *no* change in occupation and industry as indicated by the classification assigned to the 1939 and 1947 census returns of the Eastern Health District. The comparison was made mechanically in four ways. The number of workers who were in the same occupation and the same industry in 1939 and in 1947 was tabulated; likewise, those in the same occupation but in a different industry, in a different occupation but in the same industry, and in both a different occupation and industry. Service in the armed forces, or the possibility of other changes in jobs between those recorded in the censuses have been disregarded. The stability in occupation and industry determined for this group is probably exaggerated, as compared with that expected for the entire 1939 Eastern Health District population, by the method of its selection, and is understated by an amount due to varying descriptions which permit the same job to be coded into two different occupation-industry classes in the two censuses.

The study findings show that three important variables in determining stability in a job are the age of the persons studied, the nature of the job, and the consistency with which a job is commonly described. For men over 35 years of age, 63 per cent remained in the same occupation from 1939 to 1947, and 70 per cent were in the same major occupation group at both census dates and only the laborer group had a stability of less than 60 per cent. The difference between the proportion remaining in the same occupation and the proportion remaining in the same occupation group was fairly large for the clerical and sales workers, for the skilled workers, and for the operatives (semi-skilled), but the difference was negligible for the other major occupation groups.

The direction of the movement between jobs from 1939 to 1947 was not haphazard. The pattern of advancement from unskilled to semi-skilled to skilled labor, from sales clerk to proprietor or manager is clearly visible in the younger age

groups. After age 35, the amount of movement between occupation groups is relatively small. Some types of occupations lead to promotions or changes within the same industry, so that for these classes, study by industry produces more stability than study by occupation. Other industry classes themselves were so stable that they would form excellent units for the analysis of employee characteristics. In Baltimore, the garment industry, printing, the utilities, and government, all retained more than 70 per cent of the men reported in those classes in 1939.

The stability of some of the skilled occupations was obviously reduced by inconsistent returns, or response variation. Where a lack of stability is known to be associated with poor job description, it is possible to combine a cluster of closely associated occupations or industries to obtain a more stable group. In the Eastern Health District returns, it was easy to see that the housewife made no distinction between a tailor and a cutter, or between a clothing manufacturing shop and a custom tailor shop. A practical way to make sound combinations of allied groups at present is to study factors related to occupation and industry within a local area. Knowledge of the area, assistance from the large industrial plants, local directories, Labor Department information, and Social Security Board data can be obtained and used most effectively close to the original source material. The experience of these users of occupation and industry information will assist the research worker in anticipating problems that will arise in returns for jobs; in translating firm names into industries; and particularly in learning which classes of information can be realistically combined.

A second means of improving occupation and industry returns is through the standardization of job vocabulary. If the worker, informant, enumerator, and coder used the same words and understood them to have the same meaning, the response variation and the indefinite returns would no longer be a problem. This is an exceedingly difficult task. With new

occupations arising faster than the public can learn the difference between a machinist and a mechanic, standardized vocabulary does not have a promising future. However, that part of the final error introduced by poor enumeration and inconsistent coding can be cut down. The enumerator, as well as the coder, should be trained to know the discrimination required by the Census code, so that he may elicit a response that can be classified.

Serious thought should also be given in any study related to occupation and industry concerning the kind of classification needed. The minute classes of the present code may not always be necessary for the purpose of the study. Perhaps several different "intermediate" and "abridged" lists, besides the two designed by the Bureau of the Census could be formulated. A general mortality study might require combinations of industries or occupations that have similar health hazards. An economic study might need groupings of jobs of the same income. An age of retirement study might group similar types of industries. Most homogeneous groupings would reduce the instability found in a single class of the code. Only the use of the unselected data for the whole population need involve the maximum job shift and response variation.

For the immediate future, it is important to know how far one can extrapolate to larger populations from the Eastern Health District data. The Philadelphia study was made for a representative sample of that City's population. The stability was determined in direct reply to the question, "How long have you been in your present job?" The answers (Table 1) are not in the same units as the measures in this study, but the Philadelphia data show the same type of variation in length of service with age, occupation, and industry that was found in the present study. The median number of years in a job increased steadily with age, while this study found that stability leveled off after age 45. These are not contradictory observations. It is likely that whatever turnover takes place year after year involves the same people, so that while the

average number of years in a job increases with age, the number of people remaining in the same job does not change.

The other reports cited also point to a fairly stable occupational pattern. While it would be of great value to know the stability in an occupation and industry for the United States population, the present study provides a rough estimate for those occupations and industries that contain a sizable part of the Eastern Health District population. Its findings indicate that for appropriately selected age groups, occupation sequences, and related industry clusters, mortality or morbidity studies are eminently feasible.

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Appendix Table 1. Comparison of classified occupation and industry reported in the Eastern Health District censuses of 1939 and 1947 for identified white males who were employed at both census dates.

Code Number	Occupation in 1939	Number of Workers	Same Occupation and Same Industry in 1939 and 1947	Same Occupation but Different Industry in 1939 and 1947	Different Occupation but Same Industry in 1939 and 1947	Different Occupation and Different Industry in 1939 and 1947
	All Occupations	5,269	2,212	538	926	1,593
	Professional Workers					
	Total	110	79	8	5	18
V00	Artists and Art Teachers	5	1	—	—	4
V06	Chemists, Assayers, and Metallurgists	7	1	1	1	4
V08	Clergymen	11	10	—	—	1
V12	Dentists	10	10	—	—	—
V26	Lawyers and Judges	13	11	2	—	—
V28	Musicians and Music Teachers	8	4	1	—	3
V30	Pharmacists	18	17	1	—	—
V32	Physicians and Surgeons	18	18	—	—	—
	Other Professional Workers	20	7	3	4	6
	Semiprofessional Workers					
	Total	55	28	7	8	12
V62	Draftsmen	14	5	2	2	5
V64	Funeral Directors and Embalmers	7	7	—	—	—
V70	Technicians and Assistants, Laboratories	20	13	3	2	2
	Other Semiprofessional Workers	14	3	2	4	5
	Proprietors, Managers, and Officials					
	Total	396	248	33	38	77
104, 108	Inspectors, Government	9	5	—	3	1
150	Officers, Pilots, Pursers and Engineers, Ship	16	10	—	2	4
	Other Classified Officials	21	12	—	4	5
156:60-79	Proprietors, Managers, and Officials, Wholesale and Retail Trade	262	177	28	10	47
156: Exc. 60-79	Proprietors, Managers and Officials, (n.e.c.)	88	44	5	19	20
	Clerical and Kindred Workers					
	Total	516	167	55	136	158
200	Agents (n.e.c.)	5	4	—	1	—
210	Bookkeepers, Accountants and Cashiers	45	11	9	11	14
222	Mail Carriers	22	20	—	2	—
224	Messengers, Errand and Office Boys	19	—	—	5	14
226	Shipping and Receiving Clerks	68	16	8	16	28
236	Stenographers, Typists and Secretaries	21	4	1	9	7

Code Number	Occupation in 1939	Number of Workers	Same Occupation and Same Industry in 1939 and 1947	Same Occupation but Different Industry in 1939 and 1947	Different Occupation but Same Industry in 1939 and 1947	Different Occupation and Different Industry in 1939 and 1947
	Clerical and Kindred Workers (Continued)					
240	Telegraph Operators	6	3	—	2	1
252	Collectors, Bill and Account	14	5	—	4	5
258	Telegraph Messengers	5	—	—	—	5
	Other Classified Clerical Workers	7	1	—	4	2
266	Clerical and Kindred Workers (n.e.c.)	304	103	37	82	82
	Salesmen					
	Total	345	114	13	63	155
272	Hucksters and Peddlers	66	37	1	9	19
274	Insurance Agents and Brokers	25	13	—	4	8
278	Traveling Salesmen and Sales Agents	67	19	3	13	32
284	Newsboys	22	6	1	1	14
290	"Clerks" in Stores	29	6	—	10	13
	Other Classified Salesmen	8	3	—	1	4
298	Salesmen (n.e.c.)	128	30	8	25	65
	Craftsmen, Foremen and Kindred Workers					
	Total	1,597	767	244	242	344
300	Bakers	63	39	—	7	17
302	Blacksmiths, Forgemen and Hammermen	13	5	2	3	3
304	Boilermakers	11	7	1	2	1
306	Brickmasons, Stonemasons and Tile Setters	22	13	5	4	—
308	Carpenters	113	55	21	13	24
310	Compositors and Typesetters	93	53	9	12	19
314	Electricians	51	20	10	12	9
316	Foremen (n.e.c.)	107	50	8	22	27
318	Inspectors (n.e.c.)	19	9	—	5	5
326	Machinists	140	51	40	27	22
327	Millwrights	10	3	—	6	1
328	Tool Makers, and Die Makers and Setters	19	7	3	4	5
332	Mechanics and Repairmen, Automobile	40	10	9	4	17
336	Mechanics and Repairmen (n.e.c.)	85	31	9	19	26
340	Painters, Construction and Maintenance	106	63	19	4	20
342	Paperhangers	39	24	—	4	11
344	Pattern and Model Makers, Except Paper	11	6	2	2	1
348	Plumbers, and Gas and Steamfitters	90	49	21	6	14
354	Shoemakers and Repairers	32	25	—	—	7
356	Stationary Engineers	40	13	10	6	11

Code Number	Occupation in 1939	Number of Workers	Same Occupation and Same Industry in 1939 and 1947	Same Occupation but Different Industry in 1939 and 1947	Different Occupation but Same Industry in 1939 and 1947	Different Occupation and Different Industry in 1939 and 1947
	Craftsmen, Foremen and Kindred Workers (Continued)					
358	Cranemen, Hoistmen and Construction Machinery Operators	30	14	4	4	8
360	Tailors	179	106	28	25	20
362	Tinsmiths, Coppersmiths and Sheet Metal Workers	62	13	21	11	17
364	Upholsterers	35	19	6	6	4
366	Cabinetmakers	24	6	8	2	8
388	Photoengravers and Lithographers	18	11	—	1	6
392	Pressmen and Plate Printers, Printing	25	15	1	6	3
394	Rollers and Roll Hands, Metal	15	2	1	5	7
398	Structural and Ornamental Metal Workers	19	3	2	3	11
	Other Classified Craftsmen	86	45	4	17	20
	Operatives and Kindred Workers					
	Total	1,510	522	133	293	562
	Classified Operators, sub-total	650	232	54	101	263
400-414	Apprentices	18	—	—	4	14
416	Attendants, Filling Station, Parking Lot, Garage and Airport	17	2	—	4	11
420	Chauffeurs and Drivers, Bus, Taxi, Truck and Tractor	243	82	31	26	104
432	Deliverymen	110	42	7	8	53
436	Buffers and Polishers, Metal	10	2	—	5	3
442	Firemen, Except Locomotive and Fire Department	15	4	—	2	9
444	Furnacemen, Smeltermen and Pourers	21	7	—	8	6
448	Laundry Operatives, Except Private Family	13	1	1	—	11
450	Linemen and Servicemen, Telegraph, Telephone and Power	27	20	1	4	2
452	Meat Cutters, Except Slaughter and Packing House	30	12	2	6	10
456	Motormen, Street Railway	19	14	—	2	3
458	Painters, Except Construction and Maintenance	28	7	3	6	12
460	Sailors and Deck Hands, Except U. S. Navy	10	2	—	2	6
464	Welders and Flame-Cutters	31	9	5	6	11
	Other Classified Operatives	58	28	4	18	8
496:	*Operatives and Kindred Workers (n.s.c.), sub-total*	860	290	79	192	299
V9	Construction	17	10	1	3	3

Code Number	Occupation in 1939	Number of Workers	Same Occupation and Same Industry in 1939 and 1947	Same Occupation but Different Industry in 1939 and 1947	Different Occupation but Same Industry in 1939 and 1947	Different Occupation and Different Industry in 1939 and 1947
	Operatives and Kindred Workers (n.s.c.) (Continued)					
496:	Manufacturing: Durable Goods					
1V	Furniture and Store Fixtures	17	5	2	3	7
29	Blast Furnaces, Steel Works and Rolling Mills	75	21	9	19	26
3V	Tin Cans and Other Tinware	34	6	6	9	13
30	Miscellaneous Iron and Steel Products	46	5	8	8	25
31	Nonferrous Metal Primary Products	12	5	—	5	2
35	Electrical Machinery and Equipment	17	3	1	8	5
37	Miscellaneous Machinery	23	6	1	5	11
38	Aircraft and Parts	35	6	3	14	12
39	Automobiles and Automobile Equipment	21	6	1	6	8
4V	Ship and Boat Building and Repairing	15	7	1	4	3
	Other Manufacturing and Durable Goods	34	13	3	6	10
	Manufacturing: Nondurable Goods					
XV	Bakery Products	13	2	—	6	5
X0	Beverage Industry	34	12	2	9	11
X5	Meat Products	54	24	2	5	23
X6	Miscellaneous Food Industries	16	6	—	2	8
06	Apparel and Accessories	162	84	12	32	34
12	Paperboard Containers and Boxes	13	4	—	1	8
14	Painting, Publishing and Allied Industries	35	15	4	8	8
21	Footwear Industries, Except Rubber	14	5	1	—	8
	Other Manufacturing, Nondurable Goods	45	12	8	9	16
44	Not Specified Manufacturing	8	1	4	—	3
	Transportation, Communication and Other Public Utilities	30	10	—	9	11
60-79	Wholesale and Retail Trade	49	7	7	13	22
88	Laundering, Cleaning Services	19	7	3	2	7
	All Other Industry	22	6	—	6	10
	Protective Service Workers					
	Total	199	132	8	21	38
600	Firemen, Fire Department	72	58	—	3	11
602	Guards, Watchmen and Doorkeepers	50	19	8	13	10
604	Policemen and Detectives, Government	59	47	—	2	10

Code Number	Occupation in 1939	Number of Workers	Same Occupation and Same Industry in 1939 and 1947	Same Occupation but Different Industry in 1939 and 1947	Different Occupation but Same Industry in 1939 and 1947	Different Occupation and Different Industry in 1939 and 1947
	Protective Service Workers (Continued)					
	All Other Protective Service Workers	18	8	—	3	7
	Service Workers, except Domestic and Protective					
	Total	193	97	6	21	69
700	Barbers	55	50	1	—	4
710	Bartenders	34	18	—	4	12
740	Janitors and Sextons	25	9	4	3	9
770	Servants, Except Private Family	11	1	—	2	8
780	Waiters and Waitresses	12	3	—	4	5
790	Attendants, Hospital and Other Institutions	19	5	—	1	13
	All Other Service Workers	37	11	1	7	18
	Laborers					
	Total	337	57	31	98	151
988	Laborers (n.e.c.)	317	48	31	92	146
	All Other Classified Laborers	20	9	—	6	5
	All Other Classified Occupations					
	Total	11	1	—	1	9
	Industry in 1939					
	All Industry	5,269	2,212	538	926	1,593
VV	Agriculture	3	—	—	1	2
V5	Sand and Gravel Production	1	1	—	—	—
V9	Construction	405	222	40	56	87
	Manufacturing					
	Durable Goods	1,188	336	173	287	392
1V	Furniture and Store Fixtures	64	22	11	10	21
10	Miscellaneous Wooden Goods	27	13	2	3	9
25	Glass and Glass Products	10	3	3	1	3
29	Blast Furnaces, Steel Works and Rolling Mills	333	110	50	79	94
3V	Tin Cans and Other Tinware	100	25	17	25	33
30	Miscellaneous Iron and Steel Industries	118	17	25	23	53
31	Nonferrous Metal Primary Products	56	24	6	15	11
32	Clocks, Watches, Jewelry and Silverware	11	3	1	3	4
33	Miscellaneous Nonferrous Metal Products	22	5	3	3	11
35	Electrical Machinery and Equipment	43	10	5	17	11
37	Miscellaneous Machinery	87	22	11	23	31
38	Aircraft and Parts	114	25	11	41	37
39	Automobile and Automobile Equipment	55	12	6	17	20
4V	Ship and Boat Building and Repairing	82	23	11	17	31

Code Number	Industry in 1939	Number of Workers	Same Occupation and Same Industry in 1939 and 1947	Same Occupation but Different Industry in 1939 and 1947	Different Occupation but Same Industry in 1939 and 1947	Different Occupation and Different Industry in 1939 and 1947
	Manufacturing, Durable Goods (Continued)					
43	Miscellaneous Manufacturing Industries	19	7	2	1	9
	All Other Durable Goods Manufacturing	47	15	9	9	14
	Nondurable Goods	1,069	491	80	197	301
XV	Bakery Products	110	57	2	16	35
X0	Beverage Industries	84	27	8	23	26
X5	Meat Products	81	33	5	9	34
X6	Miscellaneous Food Industries	46	16	2	8	20
06	Apparel and Accessories	330	176	31	62	61
12	Paperboard Containers and Boxes	27	11	—	4	12
14	Printing, Publishing and Allied Industries	209	112	10	40	47
15	Paints, Varnishes and Colors	15	3	3	3	6
17	Miscellaneous Chemical Industries	44	17	6	11	10
18	Petroleum Refining	40	19	2	9	10
21	Footwear Industries, Except Rubber	19	7	1	1	10
	All Other Nondurable Goods Manufacturing	64	13	10	9	32
44	Not Specified Manufacturing Industries	21	—	13	—	8
	Transportation, Communication and Other Public Utilities	581	264	44	127	146
45	Air Transportation	15	1	4	—	10
47	Railroads (Including Railroad Repair Shops)	135	71	5	50	9
49	Street Railways and Bus Lines	58	36	3	10	9
5V	Taxicab Service	45	16	2	4	23
50	Trucking Service	54	17	9	5	23
51	Water Transportation	51	17	3	12	19
52	Warehousing and Storage	15	4	4	1	6
55	Telephone (Wire and Radio)	20	17	—	2	1
56	Telegraph (Wire and Radio)	14	3	—	3	8
58	Electric Light and Power	90	47	3	28	12
6V	Water and Sanitary Services	64	24	10	10	20
	All Other	20	11	1	2	6
	Wholesale and Retail Trade	1,006	397	94	142	373
60	Wholesale Trade	147	41	16	26	64
	Retail Trade	859	356	78	116	309
61	Food Stores, Except Dairy Products	316	156	17	53	90
62	Dairy Products Stores and Milk Retailing	38	14	4	3	17
63	General Merchandise Stores	74	17	10	16	31

Code Number	Industry in 1939	Number of Workers	Same Occupation and Same Industry in 1939 and 1947	Same Occupation but Different Industry in 1939 and 1947	Different Occupation but Same Industry in 1939 and 1947	Different Occupation and Different Industry in 1939 and 1947
	Retail Trade (Continued)					
65	Apparel and Accessories Stores, Except Shoes	65	31	12	6	16
67	Furniture and Housefurnishings Stores	31	9	6	3	13
69	Motor Vehicles and Accessories Retailing Stores	14	5	—	1	8
7V	Filling Stations	19	5	1	3	10
70	Drug Stores	24	17	3	—	4
71	Eating and Drinking Places	99	53	3	10	33
72	Hardware and Farm Implement Stores	13	6	1	3	3
73	Lumber and Building Material Retailing	35	5	5	7	18
76	Jewelry Stores	15	6	—	4	5
77	Fuel and Ice Retailing	42	11	4	2	25
78	Miscellaneous Retail Stores	33	9	6	4	14
	All Other Retail Trade	41	12	6	1	22
	Finance, Insurance and Real Estate	97	39	9	19	30
8V	Banking and Other Finance	31	11	3	7	10
80	Insurance	49	22	4	10	13
81	Real Estate	17	6	2	2	7
	Business and Repair Services	106	40	15	13	38
82	Advertising	9	5	—	—	4
83	Business Services, Except Advertising	21	8	4	1	8
84	Automobile Storage, Rental and Repair	44	10	5	8	21
85	Miscellaneous Repair Services and Hand Trades	32	17	6	4	5
	Personal Services	225	124	14	10	77
86	Domestic Service	12	2	2	—	8
87	Hotels and Lodging Places	20	7	2	2	9
88	Laundering, Cleaning and Dyeing Services	84	29	7	8	40
89	Miscellaneous Personal Services	109	86	3	—	20
	Amusement, Recreation and Related Services	37	11	2	8	16
9V	Theaters and Motion Pictures	18	7	1	3	7
90	Miscellaneous Amusement and Recreation	19	4	1	5	9
	Professional and Related Services	176	103	16	14	43
91	Educational Services	35	18	5	4	8
92	Medical and Other Health Services	101	56	8	8	29
93	Legal, Engineering and Misc. Professional Services	16	12	2	—	2

Code Number	Industry in 1939	Number of Workers	Same Occupation and Same Industry in 1939 and 1947	Same Occupation but Different Industry in 1939 and 1947	Different Occupation but Same Industry in 1939 and 1947	Different Occupation and Different Industry in 1939 and 1947
	Professional and Related Services (Continued)					
94	Charitable, Religious and Membership Agencies	24	17	1	2	4
	Government	322	184	20	52	66
95	Postal Service	38	28	—	7	3
96	National Defense	17	4	4	2	7
97	Federal Government (n.e.c.)	53	17	6	15	15
98	State and Local Government (n.e.c.)	214	135	10	28	41
99	Industry not Reported	32	—	18	—	14

Appendix Table 2. Number in each major occupation group in 1939 reported in specified major occupation groups in 1947, by age, for the identified white males employed at both census dates.

Major Occupation Groups in 1939	1939	Major Occupation Groups in 1947									
	Total	V	1	2	3	4	5	6	7	0,8	9
*14 Years of Age and Over[1]	5,269	199	561	762	1,879	1,217	5	275	180	2	189
V. Professional and Semiprofessional Workers	165	133	4	9	10	5	—	3	—	—	1
1. Proprietors, Managers, and Officials	396	5	287	28	43	21	—	5	4	1	2
2. Clerical, Sales, and Kindred Workers	861	17	107	517	84	84	—	20	10	—	22
3. Craftsmen, Foremen, and Kindred Workers	1,597	20	61	53	1,248	158	1	28	9	—	19
4. Operatives and Kindred Workers	1,510	13	73	109	366	824	1	49	31	—	44
5. Domestic Service Workers	7	—	1	2	1	2	1	—	—	—	—
6. Protective Service Workers	199	3	3	12	8	15	1	151	3	—	3
7. Service Workers, Exc. Domestic and Protective	103	5	15	11	22	15	—	7	111	—	7
0, 8. Farmers and Farm Laborers	4	—	—	—	1	—	—	—	—	1	2
9. Laborers, Except Farm and Mine	337	3	10	21	96	93	1	12	12	—	89
15 to 24 Years of Age	725	34	59	141	217	188	1	40	18	—	27
V. Professional and Semiprofessional Workers	14	8	—	2	2	1	—	1	—	—	—
1. Proprietors, Managers, and Officials	7	1	4	1	1	—	—	—	—	—	—
2. Clerical, Sales and Kindred Workers	188	7	20	87	29	27	—	10	1	—	7
3. Craftsmen, Foremen, and Kindred Workers	127	6	6	11	74	24	—	4	1	—	1
4. Operatives and Kindred Workers	272	10	21	29	80	98	1	15	7	—	13
5. Domestic Service Workers	2	—	1	—	—	1	—	—	—	—	—
6. Protective Service Workers	8	—	—	—	1	2	—	5	—	—	—
7. Service Workers, Exc. Dom. and Prot.	31	1	4	2	7	7	—	2	7	—	1
9. Laborers, Except Farm and Mine	76	1	3	9	23	28	—	5	2	—	5

*Includes 13 men of unknown age.

Major Occupation Groups in 1939	1939	Major Occupation Groups in 1947									
	Total	V	1	2	3	4	5	6	7	0,8	9
25 to 34 Years of Age	**1,392**	**76**	**128**	**232**	**469**	**333**	**1**	**71**	**37**	**—**	**45**
V. Professional and Semiprofessional Workers	76	59	1	4	7	3	—	2	—	—	—
1. Proprietors, Managers, and Officials	70	2	46	8	5	7	—	2	—	—	—
2. Clerical, Sales and Kindred Workers	269	5	40	148	30	30	—	5	5	—	6
3. Craftsmen, Foremen, and Kindred Workers	355	5	9	17	256	47	—	13	3	—	5
4. Operatives and Kindred Workers	470	1	26	45	129	225	—	18	8	—	18
5. Domestic Service Workers	1	—	—	1	—	—	—	—	—	—	—
6. Protective Service Workers	35	—	1	3	—	2	—	29	—	—	—
7. Service Workers, Exc. Dom. and Prot.	40	3	2	3	7	3	—	1	18	—	3
0,8. Farmers and Farm Laborers	1	—	—	—	1	—	—	—	—	—	—
9. Laborers, Except Farm and Mine	75	1	3	3	34	16	1	1	3	—	13
35 to 44 Years of Age	**1,419**	**40**	**164**	**182**	**533**	**319**	**1**	**83**	**45**	**—**	**52**
V. Professional and Semiprofessional Workers	36	30	1	3	1	—	—	—	—	—	1
1. Proprietors, Managers, and Officials	123	1	92	8	13	5	—	2	1	—	1
2. Clerical, Sales and Kindred Workers	207	3	28	132	19	16	—	1	4	—	4
3. Craftsmen, Foremen, and Kindred Workers	455	3	18	7	384	32	—	5	—	—	6
4. Operatives and Kindred Workers	387	1	17	20	90	238	—	6	9	—	6
5. Domestic Service Workers	1	—	—	—	—	1	—	—	—	—	—
6. Protective Service Workers	74	2	2	1	2	3	1	63	—	—	—
7. Service Workers, Exc. Dom. and Prot.	52	—	6	5	4	2	—	2	31	—	2
9. Laborers, Except Farm and Mine	84	—	—	6	20	22	—	4	—	—	32
45 to 54 Years of Age	**1,242**	**33**	**144**	**146**	**488**	**282**	**—**	**51**	**51**	**2**	**45**
V. Professional and Semiprofessional Workers	26	24	1	—	—	1	—	—	—	—	—
1. Proprietors, Managers, and Officials	129	—	95	7	15	7	—	—	3	1	1
2. Clerical, Sales and Kindred Workers	145	2	15	108	5	9	—	3	—	—	3
3. Craftsmen, Foremen, and Kindred Workers	471	4	20	12	389	37	—	4	—	—	5
4. Operatives and Kindred Workers	287	1	8	10	54	197	—	8	4	—	5
5. Domestic Service Workers	2	—	—	1	1	—	—	—	—	—	—
6. Protective Service Workers	57	1	—	6	5	7	—	35	—	—	3
7. Service Workers, Exc. Dom. and Prot.	52	1	3	1	3	2	—	—	41	—	1
0, 8. Farmers and Farm Laborers	2	—	—	—	—	—	—	—	—	1	1
9. Laborers, Except Farm and Mine	71	—	2	1	16	22	—	1	3	—	26
55 to 64 Years of Age	**418**	**12**	**55**	**51**	**151**	**82**	**2**	**24**	**22**	**—**	**19**
V. Professional and Semiprofessional Workers	10	9	1	—	—	—	—	—	—	—	—
1. Proprietors, Managers, and Officials	58	—	43	4	9	1	—	1	—	—	—
2. Clerical, Sales and Kindred Workers	43	—	3	34	1	2	—	1	—	—	2
3. Craftsmen, Foremen, and Kindred Workers	161	2	5	4	127	16	1	1	3	—	2
4. Operatives and Kindred Workers	79	—	1	5	10	56	—	4	2	—	1
5. Domestic Service Workers	1	—	—	—	—	—	1	—	—	—	—
6. Protective Service Workers	19	—	—	2	—	1	—	14	2	—	—
7. Service Workers, Exc. Dom. and Prot.	15	—	—	—	1	1	—	2	11	—	—
0, 8. Farmers and Farm Laborers	1	—	—	—	—	—	—	—	—	—	1
9. Laborers, Except Farm and Mine	31	1	2	2	3	5	—	1	4	—	13
65 Years of Age and Over	**60**	**4**	**8**	**8**	**17**	**10**	**—**	**5**	**7**	**—**	**1**
V. Professional and Semiprofessional Workers	3	3	—	—	—	—	—	—	—	—	—
1. Proprietors, Managers, and Officials	6	1	5	—	—	—	—	—	—	—	—
2. Clerical, Sales and Kindred Workers	7	—	1	6	—	—	—	—	—	—	—
3. Craftsmen, Foremen, and Kindred Workers	23	—	2	2	14	2	—	1	2	—	—
4. Operatives and Kindred Workers	13	—	—	—	3	8	—	—	1	—	1
6. Protective Service Workers	5	—	—	—	—	—	—	4	1	—	—
7. Service Workers, Exc. Dom. and Prot.	3	—	—	—	—	—	—	—	3	—	—
9. Laborers, Except Farm and Mine	—	—	—	—	—	—	—	—	—	—	—

CAUSE OF ILLNESS AMONG MALES AND FEMALES

JEAN DOWNES[1]

A NUMBER of papers have been published dealing with general morbidity by sex obtained in population surveys, (1, 2). Both of these analyses have encountered the anomaly that whereas males show an excess mortality compared with females, the morbidity for females has shown a considerable excess over that for males. Sydenstricker and Collins took account of the influence of the informant, usually the housewife, on the data but even then some excess for females over males persisted. This was true even for a serious chronic condition with risk of mortality such as heart disease (1).

Improvement in techniques of collection of data on illness has not resulted in a real understanding of why there are differences between the sexes with respect to morbidity. However, the data on illness by sex obtained from a survey of a sample population in the Eastern Health District of Baltimore are presented in this report because they do furnish some information with regard to differences between the sexes which has not been available from previous surveys.

DATA AND METHOD OF STUDY

During a five-year period, June, 1938, to May, 1943, the Public Health Service and the Milbank Memorial Fund conducted a study of illness in a sample of families in the Eastern Health District of Baltimore, Maryland. The method of sampling in this particular study has been described in detail in previous reports (3, 4). White families living in thirty-four city blocks formed the sample population. The plan of the study was to follow families that lived in a group of houses in certain blocks rather than to follow a selected group of families. No attempt was made to continue visiting families which moved out of these houses during the period of the study but the new

[1] From the Milbank Memorial Fund and the Division of Public Health Methods of the Public Health Service.

families that moved into the houses vacated in the sample blocks were included in the study. The record of illness started with the first visit to the family and each family was visited once a month thereafter.

In the studies of illness conducted by periodic canvasses of families, "illness" may be considered to include any affection or disturbance of health which persists for a considerable part of one or more days. In this study, as in other family surveys, no specific definition of illness was formulated. The records of "illness" are statements of cases of illness reported by the household informant (usually the housewife), either as experienced by herself or as she observed them in her family. Physical defects or deformities were recorded only if disabling or if medical attention were given them.

For all cases of illness a record was made of the nature and amount of medical service received and whether rendered by a private physician, clinic, or hospital. The causes of illness as reported by the family informants were submitted to the attending physicians for confirmation or correction. The causes of illness for clinic attendance and hospital admissions were also checked against the records of the clinic or hospital where the service was given. The only exception to this procedure was for illnesses hospitalized outside the city of Baltimore.

The problem of obtaining an accurate and complete picture of the extent of chronic disease in an observed population was of particular concern in the study in the Eastern Health District. Careful inquiry was made concerning members of the family who were in institutions for the mentally ill, for the feeble minded, for the tuberculous, and for other chronic diseases requiring institutional care. Special information was sought for all diseases of a chronic nature. This special information included data concerning the onset of the first symptoms of the disease, their nature and date, the date first diagnosed, and whether or not the diagnosis was made by a private physician, at a clinic, or at a hospital.

In this analysis of morbidity by sex, illnesses are classified as

to whether acute or chronic. Chronic illness is further subdivided and these cases are classed as either a "major" or a "minor" disease. The classification "major" chronic disease includes: heart disease, hypertension or high blood pressure, arthritis, tuberculosis, diabetes, chronic nephritis, rheumatic fever, varicose veins, chronic gall bladder disease, syphilis, malignant neoplasm, peptic ulcer, toxic goiter, epilepsy, mental deficiency, psychoses and psychoneuroses, and other important but relatively rare chronic conditions. The "minor" chronic illnesses are those of a less severe nature. Chronic sinusitis, asthma, lumbago, neuritis, neuralgia, chronic headache, and chronic indigestion are some of the illnesses in the "minor" category.

It should be emphasized that the category, "chronic disease" in the morbidity study being reported upon includes chronic conditions which manifested themselves in illness that was severe enough to require medical care at some time and which were diagnosed either by a private physician or at a clinic or hospital. Quite different results would be obtained if all persons in the sample population were examined to detect the presence of chronic disease.

Cases of acute illness as presented in this report represent an incidence or occurrence of illness over an average twelve month period. On the other hand cases of chronic illness represent a prevalence over an average twelve month period, that is, chronic cases include those where the onset of illness occurred prior to observation as well as those where the onset occurred during observation. Some persons were reported to have more than one chronic illness or developed an additional condition while under observation. For example, a patient may have had hypertrophic arthritis and later developed heart disease. Each condition was counted as a case of chronic disease. A consistent effort was made, however, to avoid consideration of symptoms of a chronic disease as though each symptom were a distinct disease entity. For example, a patient with coronary disease may have reported attacks of neuritis in the left shoulder and

arm. The attending physician's statement attributed these attacks to coronary disease and coronary disease was considered as the sole chronic condition.

The counting of chronic disease cases when persons are observed over a considerable period of time presents a problem more complex than is true for a short time period, such as one year. For example, a person with mild hypertrophic arthritis may suffer little or no disability from the condition over a period of several years. This person has the risk of developing heart disease as do others of the same age and sex in the general population. If heart disease did develop in such a person the condition was considered as a new case of chronic disease. It was not regarded as a complication of arthritis nor as contributory to any illness from arthritis. Nor was arthritis considered as contributory to illness from heart disease. If there were disability from either illness, disabling days were assigned only to the particular chronic condition causing the disability.

The population is composed of person-years of life of people who were observed for varying time periods in the thirty-four blocks which were studied from three to five years. A person observed for five years was counted as five person-years of life. If that same person reported the presence of diabetes during the first year of the study, he was counted as a diabetic also in the subsequent four years of his observation. Thus the rate of illness from chronic disease is an average annual rate based on all cases diagnosed as conditions in the category "chronic disease."

Summary of Illness and Medical Care

The data presented in this report include the sickness record for all families observed two months or longer in the sample of thirty-four city blocks. Seventeen of these blocks were included in the study for a period of five years and the other seventeen for a period of three years (4). The population for the total period included 20,832 person years of observation, 10,282 male and 10,550 female person years.

The age of distribution of the sample population by sex is

compared with the total white population of the original Eastern Health District (Wards 6 and 7) in Table 1. It is apparent that with respect to age there were no important differences between the sample population and the total population from which it was drawn.

Table 2 shows the amount of illness present in the sample population during an average twelve month period. In each illness class the rate among females exceeded that among males. The rate of acute illness for females was 41 per cent above the rate for males; the female rate of chronic illness showed an excess fairly similar to that for acute, namely, 49 per cent.

Annual rates of doctor's calls for males and females are shown in Table 3. In each sickness class the rates were higher for females than for males. However, the difference between the sexes was not as great as was true of the illness rates. The rate of medical calls for acute illness among females was 26 per cent

Table 1. Age distribution of males and females in the morbidity study in 34 city blocks in the Eastern Health District compared with the age distribution of all white males and females in the original district.

Age Group	Sample White Population[1]		Total White Population of the District, 1939[2,3]	
	Male	Female	Male	Female
	per cent			
All Ages	100.0	100.0	100.0	100.0
0–4	7.6	7.1	6.9	6.3
5–9	8.2	6.9	6.9	6.9
10–14	8.2	8.0	8.9	8.2
15–19	9.9	9.3	10.1	9.7
20–24	8.7	9.2	10.0	10.3
25–34	17.4	17.2	18.0	17.3
35–44	14.6	14.9	14.2	14.2
45–54	13.2	12.5	12.7	12.6
55–64	7.3	8.2	7.3	8.0
65+	4.9	6.7	5.0	6.5
Total Population	10,282	10,550	21,295	21,988

[1] Excluding 8 males and 2 females of unknown age.
[2] Excluding 149 males and 221 females of unknown age.
[3] Data from Reed, Lowell J.; Fales, W. Thurber; and Badger, George F.: Family Studies in the Eastern Health District. I. General Characteristics of the Population. *The American Journal of Hygiene*, January, 1943, 37, No. 1, p. 49.

Illness Class	Rate per 1,000 Population			Number of Cases		
	Both Sexes	Male	Female	Both Sexes	Male	Female
Total	1,499.7	1,234.4	1,758.4	31,243	12,692	18,551
Acute Illness	1,261.4	1,043.5	1,473.9	26,279	10,729	15,550
Chronic Illness	238.3	190.9	284.5	4,964	1,963	3,001
Major	202.3	159.5	244.0	4,214	1,640	2,574
Minor	36.0	31.4	40.5	750	323	427

Table 2. Amount of illness present during an average twelve-month period, Eastern Health District of Baltimore, June, 1938–May, 1943.

above those for males; females had 31 per cent more medical calls for chronic illness than did males. From these data on illness and medical calls the inference may be drawn that more illnesses of a rather minor nature were reported for females than for males.

It should be pointed out that "medical calls" do not include frequency of medical attendance during any period of hospitalization. This applies both to acute and to chronic illness. This information was not sought because it was believed that records of such attendance would be subject to considerable inaccuracy if they were obtained from a family informant.

The annual incidence of hospital admissions is presented in Table 4. Females had a higher hospitalization rate for acute ill-

Table 3. Rate of doctor's calls for illness during an average twelve-month period, Eastern Health District of Baltimore, June, 1938–May, 1943.

Illness Class	Rate Per 1,000 Population			Number of Calls		
	Both Sexes	Male	Female	Both Sexes	Male	Female
Total Calls	2,418.2	2,122.7	2,706.3	50,377	21,826	28,551
Acute Illness	1,533.8	1,357.8	1,705.5	31,953	13,961	17,992
Chronic Illness	884.4	764.9	1,000.8	18,424	7,865	10,559
Major	686.8	576.4	794.3	14,307	5,927	8,380
Minor	197.6	188.5	206.5	4,117	1,938	2,179

Illness Class	Rate Per 1,000 Population			Number of Admissions		
	Both Sexes	Male	Female	Both Sexes	Male	Female
Total	74.9	66.7	82.8	1,560	688	874
Acute Illness	53.5	43.3	63.4	1,114	445	669
Chronic Illness	21.4	23.4	19.4	446	241	205
Major	19.7	21.0	18.5	411	216	195
Minor	1.7	2.4	0.9	35	25	10

Table 4. Incidence of hospital admissions for all illness during an average 12 month period, Eastern Health District of Baltimore, June, 1938–May, 1943.

ness (47 per cent excess) than did males. Inclusion of confinements accounted for the excess. On the other hand males had a slightly higher rate of hospitalization for chronic illness than did females. This was true of both classes of chronic illness.

Table 5 shows for each sex the distribution of illness, doctor's calls and hospital admissions according to the nature of the illness. The most striking point brought out by the table is the fact that chronic illness for each sex constituted only about 16 per cent of all illness in terms of cases, but received slightly more than one third of all medical calls and was the cause of 24 to 36 per cent of all hospital admissions.

Table 5. Distribution of illnesses, doctor's calls, and hospital admissions according to type of illness, Eastern Health District of Baltimore, June, 1938–May, 1943.

Illness Class	Illness		Doctor's Calls		Hospital Admissions	
	Male	Female	Male	Female	Male	Female
	per cent					
Total	100.0	100.0	100.0	100.0	100.0	100.0
Acute Illness	84.5	83.8	64.0	63.0	64.4	76.2
Chronic Illness	15.5	16.2	36.0	37.0	35.6	23.8
Major	12.9	13.9	27.2	29.4	31.9	22.6
Minor	2.6	2.3	8.8	7.6	3.7	1.2

Acute Illness by Cause

The incidence of acute illness by broad diagnosis groups is shown for males and females in Table 6. The diagnosis classes are arrayed according to their frequency as causes of illness. Slightly more than 50 per cent of all illness in each sex group consisted of attacks of acute respiratory disease. Females had a rate 35 per cent higher than that noted for males. Females also had higher rates than males for digestive, and for skin dis-

Table 6. Incidence of acute illness by diagnosis during an average 12 month period, Eastern Health District of Baltimore, June, 1938–May, 1943.

Diagnosis Class	Total	Male	Female	Total	Male	Female
	Rate Per 1,000 Population			Number of Cases		
Total Cases	1,261.4	1,043.5	1,473.9	26,279	10,729	15,550
Excluding Certain Causes[1]	1,214.3	1,036.7	1,387.4	25,296	10,659	14,637
Acute Respiratory	659.3	560.5	755.6	13,735	5,763	7,972
Minor Respiratory	651.3	552.0	748.0	13,568	5,676	7,892
Pneumonia	8.0	8.5	7.6	167	87	80
Accidents	122.2	125.8	118.7	2,545	1,293	1,252
Digestive Diseases	85.5	71.4	99.3	1,782	734	1,048
Diseases of Skin	60.4	52.2	68.3	1,258	537	721
Acute Communicable Diseases	55.2	57.4	53.0	1,149	590	559
Female Genital Diseases	23.1	—	45.7	482	—	482
Pregnancy and Complications of Pregnancy	20.7	—	40.9	431	—	431
Diseases of the Ear	20.8	21.5	20.1	433	221	212
Diseases of the Teeth and Gums	19.0	13.9	24.1	397	143	254
Asthma and Hayfever	18.7	18.0	19.3	389	185	204
Diseases of Organs of Vision	17.7	14.2	21.1	369	146	223
All other Causes	158.8	108.6	207.8	3,309	1,117	2,192

[1] Circumcision and female genital and pregnancy.

eases, for diseases of the teeth and gums, for diseases of the organs of vision and for "all other causes."

The rate of medical calls for acute illness is presented in Table 7. Among females medical calls occurred chiefly for illness in four diagnosis groups; acute respiratory, accidents, pregnancy, and complications of pregnancy, and in the class "all other causes." The male rates of medical calls followed the same pattern by cause of illness as did the female rates when pregnancies and female genital illnesses are excluded. In fact, with this exclusion, there were only slight differences between the sexes with respect to the frequency of medical calls.

Table 7. Rate of medical calls for cases of acute illness during an average 12 month period, Eastern Health District of Baltimore, June, 1938–May, 1943.

Diagnosis Class	Medical Calls	
	Male	Female
	Rate Per 1,000 Population	
Total Calls	1,357.8	1,705.5
Excluding Certain Causes[1]	1,351.0	1,426.5
Acute Respiratory	412.0	479.9
Minor Respiratory	349.2	415.5
Pneumonia	62.8	64.4
Accidents	370.8	229.7
Digestive Diseases	66.2	73.0
Diseases of Skin	94.1	82.7
Acute Communicable Diseases	82.9	75.1
Female Genital Diseases	—	76.6
Pregnancy and Complications of Pregnancy	—	297.1
Diseases of the Ear	57.3	56.3
Diseases of the Teeth and Gums	1.7	4.8
Asthma and Hayfever	29.1	47.5
Diseases of Organs of Vision	20.5	23.7
All other Causes	223.2	259.1

[1] Circumcision, and female genital diseases and pregnancy.

The incidence of hospital admissions for acute illness classified by sex is shown in Table 8. Excluding pregnancies and their complications hospital admissions occurred most frequently among both sexes because of acute respiratory illness, accidents, digestive diseases, and the classification "all other causes." There were no important differences between the sexes. If hospital admissions for circumcision and for female genital diseases and pregnancy are excluded, the rate among males is 15 per cent above the female rate.

Diagnosis Class	Total	Male	Female	Total	Male	Female
	Rate Per 1,000 Population			Number of Hospital Admissions		
Total Admissions	53.5	3.3	3.4	1,114	445	669
Excluding Certain Causes[1]	36.6	39.1	34.1	762	402	360
Acute Respiratory	15.7	17.8	13.6	326	183	143
Minor Respiratory	13.2	14.7	11.7	274	151	123
Pneumonia	2.5	3.1	1.9	52	32	20
Accidents	3.6	4.7	2.6	76	48	28
Digestive Diseases	5.7	4.4	7.0	119	45	74
Diseases of Skin	0.9	1.2	0.6	18	12	6
Acute Communicable Diseases	0.5	0.5	0.6	11	5	6
Female Genital Diseases	2.2	—	4.3	45	—	45
Pregnancy and Complications of Pregnancy	12.7	—	25.0	264	—	264
Diseases of the Ear	1.0	0.8	1.1	20	8	12
Diseases of Teeth and Gums	—	0.1	0	1	1	0
Asthma and Hayfever	0.1	0.2	0.1	3	2	1
Diseases of Organs of Vision	0.4	0.5	0.3	8	5	3
All other Causes	10.7	13.2	8.2	223	136	87

[1] Circumcision and female genital diseases and pregnancy.

Table 8. Incidence of hospital admissions for acute illness during an average 12 month period, Eastern Health District of Baltimore, June, 1938–May, 1943.

To summarize briefly—There is a real difference in the incidence of acute illness among males and females after exclusion of female genital causes of illness. The difference is evident chiefly in the minor respiratory diseases which constitute slightly more than 50 per cent of all illness in each sex group. No such marked differences between the sexes were observed for medical calls or for hospital admissions for acute illness.

Chronic Illness by Cause

Chronic illness has been subdivided into two categories, "major" and "minor." Those in the category "major" are the chronic diseases which are generally progressive in their development and some of which incur the greatest risk of disability and mortality. The "minor chronic" category includes illnesses which may cause considerable discomfort but are

generally less disabling than those in the group indicated as "major."

Major Chronic Disease. Table 9 shows the prevalence during an average twelve month period of "major" chronic disease and crippling conditions among males and females. These diseases are arrayed by diagnosis groups according to their frequency of occurrence. Arthritis, heart disease, and diseases of the vascular system are the most important causes of chronic illness among both sexes. Both arthritis and hypertensive vascular disease occurred more frequently or had a higher prevalence among females than among males. The prevalence of psychoneurosis

Table 9. Prevalence of major chronic disease and disabling crippling conditions among males and females during an average 12 month period Eastern Health District of Baltimore, June, 1938–May, 1943.

Diagnosis Class	Total	Male	Female	Total	Male	Female
	Rate Per 1,000 Population			Number of Cases		
Total Cases	202.3	159.5	244.0	4,214	1,640	2,574
Arthritis	40.4	25.7	54.8	842	264	578
Heart Disease	33.6	27.3	39.7	700	281	419
Hypertensive Vascular Disease and Arteriosclerosis	20.4	13.6	26.9	424	140	284
Psychoneurosis and Nervousness	15.1	9.1	20.9	315	94	221
Rheumatic Fever[1]	13.5	12.5	14.4	282	130	152
Varicose Veins	10.5	2.9	17.9	219	30	189
Gall Bladder Disease	7.6	1.4	13.7	159	14	145
Diabetes	7.4	4.5	10.3	155	46	109
Mental Deficiency	7.1	8.1	6.3	148	83	65
Psychoses	5.3	5.1	5.4	111	54	57
Tuberculosis	5.1	5.4	4.8	107	56	51
Syphilis	4.6	4.4	4.7	95	45	50
Neoplasm (malignant)	3.6	2.6	4.5	74	27	47
Peptic Ulcer	3.3	6.6	0.5	68	64	4
Goiter (Toxic)	1.9	0.7	3.0	39	7	32
Other Chronic Diseases *also,* Crippling Conditions[2]	19.0	25.7	12.5	396	264	132
	3.8	4.0	3.7	80	41	39

[1] Includes cases of rheumatic fever with rheumatic heart disease.
[2] Conditions which were disabling but not classed as chronic disease.

and nervousness was also considerably higher among females than among males. Chronic gall bladder disease, varicose veins, and diabetes were more frequent among females than among males. The only chronic condition which was outstanding among males compared with females was peptic ulcer. Males had a rate of 6.6 per 1,000 population compared with 0.5 among females. The rate of crippling conditions was fairly similar for both sexes.

Table 10 shows the annual rate of medical calls for the different diagnoses by sex. In general the rate of medical calls by diagnosis groups follows the same pattern for each sex as did

Table 10. Rate of medical calls for major chronic disease during an average 12 month period, Eastern Health District of Baltimore, June, 1938–May 1943.

Diagnosis Class	Both Sexes	Male	Female	Both Sexes	Male	Female
	Rate Per 1,000 Population			Number of Calls		
Total Calls	686.8	576.4	794.3	14,307	5,927	8,380
Arthritis	72.1	52.5	91.2	1,502	540	962
Heart Disease	145.4	127.2	163.2	3,030	1,308	1,722
Hypertensive Vascular Disease & Arteriosclerosis	59.2	46.6	71.5	1,233	479	754
Psychoneurosis and Nervousness	49.9	28.6	70.6	1,039	294	745
Rheumatic Fever[1]	46.5	37.8	55.0	969	389	580
Varicose Veins	26.0	18.4	33.4	541	189	352
Gallbladder Disease	13.5	3.5	23.2	281	36	245
Diabetes	47.9	32.3	63.2	998	331	667
Mental Deficiency	4.0	1.9	6.1	84	20	64
Psychoses	15.2	12.5	17.7	316	129	187
Tuberculosis	20.7	11.3	30.0	431	115	316
Syphilis	45.0	49.1	40.9	937	505	432
Neoplasm (malignant)	34.5	26.8	42.0	719	276	443
Peptic Ulcer	11.8	22.3	1.5	245	229	16
Goiter (toxic)	12.2	2.2	22.0	255	23	232
Other Chronic Diseases *also,* Crippling Conditions[2]	72.0	90.5	53.8	1,499	931	568
	10.9	12.9	9.0	228	133	95

[1] Includes cases of rheumatic fever with rheumatic heart disease.
[2] Conditions which were disabling but not classed as chronic disease.

the prevalence rate of illness. The one exception was that for each sex the rate of calls for heart disease was considerably higher than for any other cause of illness. This no doubt was due to the serious nature of heart disease when compared, for example, with a chronic condition such as arthritis which may be disabling but which is not a cause of death.

The incidence of hospital admissions for the "major" chronic diseases is presented in Table 11. Hospital admissions are distributed throughout all diagnosis groups. The most frequent causes of hospitalization were heart disease, rheumatic fever, mental deficiency, psychoses, tuberculosis and malignant neo-

Table 11. Incidence of hospital admissions for major chronic disease during an average 12 month period, Eastern Health District of Baltimore, June, 1938–May, 1943.

Diagnosis Class	Both Sexes	Male	Female	Both Sexes	Male	Female
	Rate Per 1,000 Population			Number of Hospital Admissions		
Total Cases	19.7	21.0	18.5	411	216	195
Arthritis	0.4	0.3	0.5	8	3	5
Heart Disease	2.9	2.8	3.0	61	29	32
Hypertensive Vascular Disease and Arteriosclerosis	0.7	1.0	0.5	15	10	5
Psychoneurosis and Nervousness	0.8	1.4	0.2	17	15	2
Rheumatic Fever[1]	1.8	2.5	1.1	38	26	12
Varicose Veins	0.2	0	0.5	5	0	5
Gallbladder Disease	0.2	0	0.5	5	0	5
Diabetes	0.7	0.6	0.7	14	6	8
Mental Deficiency	1.0	1.2	0.7	20	12	8
Psychoses	2.8	3.0	2.7	59	31	28
Tuberculosis	2.3	2.4	2.2	48	25	23
Syphilis	0.2	0.4	0	4	4	0
Neoplasm (malignant)	1.6	1.7	1.6	34	17	17
Peptic Ulcer	0.4	0.6	0.1	7	6	1
Goiter (toxic)	0.4	0.1	0.6	7	1	6
Other Chronic Diseases *also,*	3.0	2.7	3.2	62	28	34
Crippling Conditions[2]	0.3	0.3	0.4	7	3	4

[1] Includes cases of rheumatic fever with rheumatic heart disease.
[2] Conditions which were disabling but not classed as chronic disease.

Diagnosis Class	Total	Male	Female	Total	Male	Female
	Rate Per 1,000 Population			Number of Cases		
Total Cases	36.0	31.4	40.5	750	323	427
Respiratory	14.1	16.5	11.7	293	170	123
Other Causes	16.4	14.9	17.9	342	153	189
Female Genital Conditions	5.5	—	10.9	115	—	115

Table 12. Prevalence of minor chronic conditions among males and females during an average 12 month period, Eastern Health District of Baltimore, June, 1938–May, 1943.

plasm, and the class, "other chronic diseases."[2] Except for varicose veins, gall bladder disease, peptic ulcer, and toxic goiter, the male and female rates of hospitalization for specific causes were fairly similar. These were illnesses which, though infrequent in occurrence, were concentrated either in one sex group or in the other. Excluding mental deficiency and psychoses, hospital admissions occurred chiefly for those chronic conditions which entail the greatest risk of mortality.

Minor Chronic Disease. "Minor" chronic diseases constituted only slightly more than two per cent of the total cases of illness among both males and females. Table 12 shows the prevalence of these conditions subdivided into chronic respiratory disease, "other causes" and female genital conditions.[3] There were no important differences in the rates by sex when chronic female genital conditions are excluded from consideration.

[2] The classification "other chronic diseases" includes cases of chronic nephritis uncomplicated by hypertensive vascular disease, urinary calculi, the anemias (except secondary anemia), hernia, multiple sclerosis, Parkinson's disease, chronic disease of the prostate gland, and osteomyelitis.

[3] Chronic respiratory conditions include chronic cough, cold, chronic bronchitis, sinusitis, and asthma. (*Note:* Acute attacks of asthma were classed as acute illness and these illnesses appear in the tables dealing with acute illness). The category "other causes" includes chronic skin conditions, chronic indigestion, chronic cystitis and pyelitis, chronic conditions of organs of vision and of hearing, bursitis and synovitis, sacro-iliac disease, lumbago, neuralgia, neuritis and chronic headache, secondary anemia, hemorrhoids, and conditions due to glandular mal-function.

"Female genital conditions" include chronic cervicitis, vaginitis, ovarian disfunction and menopause with severe symptoms or manifestations.

Table 13 shows the rate of medical calls by diagnosis groups for males and females. The rates for chronic respiratory illness and for the class, "other causes" were somewhat higher for males than for females. Medical calls were not concentrated in any particular sickness class. This was true of both sexes.

Table 13. Rate of medical calls for minor chronic disease cases during an average 12 month period, Eastern Health District of Baltimore, June, 1938–May, 1943.

Diagnosis Class	Medical Calls	
	Male	Female
	Rate Per 1,000 Population	
Total	188.5	206.5
Respiratory	85.8	72.6
Other Causes	102.7	72.8
Female Genital Conditions	—	61.1
	Number of Calls	
Total	1,938	2,179
Respiratory	882	766
Other Causes	1,056	768
Female Genital Conditions	—	645

The incidence of hospital admissions for minor chronic conditions was relatively low, 2 for males and 1 for females per 1,000 population. Hospitalization in both sex groups was due chiefly to illnesses in the illness class, "other causes." (Table 14).

In comparison with chronic disease classed as "major," those classed as "minor" were truly minor with respect to frequency of occurrence, amount of medical service and risk of hospitalization.

Table 14. Incidence of hospital admissions for cases of minor chronic disease during an average 12 month period, Eastern Health District of Baltimore, June, 1938–May, 1943.

Diagnosis Class	Total	Male	Female	Total	Male	Female
	Rate Per 1,000 Population			Number of Admissions		
Total Cases	1.7	2.4	0.9	35	25	10
Respiratory	0.3	0.5	0.1	6	5	1
Other Causes	1.4	1.9	0.8	29	20	9
Female Genital Conditions	0	—	0	0	—	0

Prevalence and Incidence of Chronic Disease by Age and Sex

Prevalence of chronic disease in a given population can be expressed in several ways. One of these is the number of cases of chronic disease, that is, the number of different diagnoses present in the population at a given moment of time or over a specific period of time. Another method of expression is the number of persons in the population who have had a diagnosis of one or more chronic conditions. This method is the more realistic one for indicating the part of the population affected by such illness. However, in community planning for adequate facilities for care and treatment of chronic disease it is advantageous to know the size of the problem in terms of number of cases rather than solely on the basis of persons affected. For example, a patient who has hypertensive vascular disease and arthritis needs treatment for both conditions.

In the first section of this report the prevalence of cases of chronic illness by diagnosis was presented. In this section the prevalence of persons at specific ages and by sex is presented.

Incidence of chronic disease in a given population is the rate of occurrcence of new cases or as given in this report of new or first diagnosis of such disease in the observed group. To obtain an accurate indication of the incidence of chronic disease requires careful observation of a population over a considerable period of time. It was for this reason that the study population in the Eastern Health District was observed over a period of three to five years. Sufficient data were accumulated so that it is now possible to present the incidence of newly diagnosed chronic disease cases by age and sex.

Prevalence of Persons with Chronic Disease. Figure 1 and Appendix Table 2 show the prevalence of males and females at specific ages who have been found to have a major chronic disease. These data refer to the middle or third study year. For both sexes under 25 years of age the prevalence was relatively low. During middle and old age the rates for each sex increased

sharply. In the oldest age period 52 per cent of the females and 43 per cent of the males were sufficiently affected so that they had had a diagnosis of chronic disease. It is interesting to note also that after age 15 the female rate remained above the male rate at each age period.

Fig. 1. Per cent of males and females at specific ages who reported the presence of major chronic disease, June, 1940–May, 1941, Eastern Health District of Baltimore.

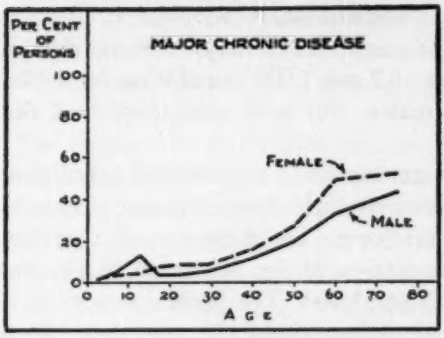
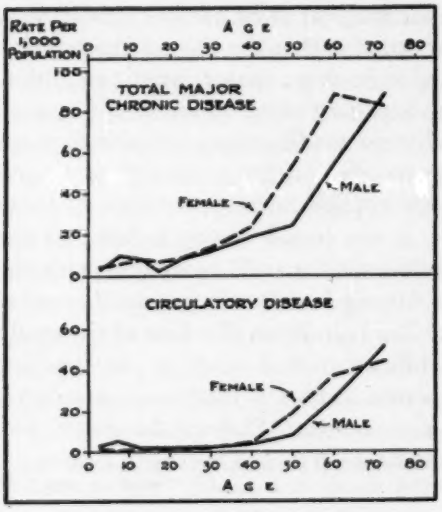


Fig. 2. Annual age incidence of new diagnoses of major chronic disease among males and females, June, 1938–May, 1943, Eastern Health District of Baltimore.



Incidence of New Cases of Chronic Disease. Figure 2 and Appendix Table 3 show for each sex the age incidence of major chronic disease. The lower section of the figure shows the data for circulatory disease, (hypertensive vascular disease and heart disease). The incidence of all chronic disease was similar for males and females until after age 35; from that point on the rate among females increased more sharply than was true among males. One inference that may be drawn from these data is that females with a given condition may seek medical attention and obtain a diagnosis earlier than do males.

It will be noted that

the age incidence of new cases of circulatory disease showed greater similarity between the sexes than was true of all major chronic disease. Circulatory diseases are of a serious nature and there should be less delay in their diagnosis in both sex groups than may be true of other conditions. However, even here the female rate exceeded the male rate after age 45 and until the oldest age period was reached.

The annual incidence of new cases of major chronic disease for all ages combined was 18.7 per 1,000 population for males and 28.6 per 1,000 for females. For both sexes combined the rate was 23.7.

Cases of chronic illness accumulate in an observed population unless mortality among persons with chronic disease occurs at the same rate that new cases occur. The mean annual mortality in the chronic disease population of the seventeen blocks observed for five years was 5 per 1,000. The annual rate of incidence was slightly more than four times the mortality. As a result there was some accumulation of chronic cases. The average annual prevalence of chronic disease based on the experience in this study is somewhat higher than would be noted in observation of a population for one year or on a single visit survey.

It is important to point out also that the part of the population which has been classed as having a major chronic condition constitutes a special group because these persons have a greater risk of developing other chronic conditions severe enough to be diagnosed. When the age-specific incidence rates of new cases in the total population were applied to the population at those ages with chronic disease, it was found among males that the expected number of new diagnoses was 38 compared with the actual number, 42 cases. Among females the expected number was 87 and the actual number 112. From the data of the study there seemed to be no indication that medical care for one chronic condition in a person led to a diagnosis of another chronic condition in that same person.[4] Perhaps the greater risk

[4] The only exception was that of diabetes. It is known that there is a relationship

(*Continued on page 425*)

is due to biological differences in persons. The presence of one chronic condition may be indicative of generally poor resistance to the development of such diseases.

Summary

This paper has presented data on illness (acute and chronic) by cause as reported in the sample population studied in the Eastern Health District of Baltimore during the period June, 1938, to May, 1943. Certain data on medical care and hospitalization are included.

The report also deals with the prevalence and incidence of chronic disease among males and females at specific ages. Some of the important findings are as follows:

In each sex chronic illness annually constituted only about 16 per cent of all illness in terms of cases, but received slightly more than one-third of all medical calls and was the cause of 24 to 36 per cent of all hospital admissions.

There was a real difference in the incidence of acute illness among males and females when female genital causes of illness were excluded. The annual rates were: male, 1,037 and female, 1,387 per 1,000 population. The difference was evident chiefly in the minor respiratory diseases which constituted slightly more than 50 per cent of all illness in each sex group. No such marked differences between the sexes were observed for medical calls or for hospital admissions for acute illness.

Chronic disease was classified as "major" which included the more serious types of chronic illness and "minor" composed of those of a less serious nature.

The prevalence of "major" chronic disease was considerably higher among females than among males. The annual prevalence per 1,000 was 160 for males and 244 for females. Arthritis, heart disease, and hypertensive vascular disease were the most frequent causes of illness in both sex groups.

The most serious cause of chronic illness, namely, heart dis-

between diabetes and development of circulatory disorders. However, there were not a sufficient number of diabetics in the chronic disease population to account for the excess in the actual over the expected numbers.

ease, was conspicuous in that the rate of medical calls for these cases was markedly higher than for any other type of chronic disease. This was true of both sexes.

Fourteen per cent of the population observed in the third year of the morbidity study had one or more "major" chronic illnesses.

The mean annual incidence of new cases of the "major" chronic diseases was 24 per 1,000 population.

Acknowledgments

Acknowledgments are made to the Johns Hopkins School of Hygiene and Public Health, especially to the Departments of Epidemiology and Biostatistics for generous assistance and cooperation which greatly facilitated the carrying on of the study of illness in the Eastern Health District of Baltimore; to the Baltimore City Health Department for generous assistance and cooperation, especially in the matter of relationships with the medical profession.

An especial acknowledgment is made to Miss F. Ruth Phillips of the United States Public Health Service, who was in immediate charge of the collection of the morbidity data in the study in the Eastern Health District of Baltimore.

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Appendix Table 1. Number of medical calls for cases of acute illness, Eastern Health District of Baltimore, June, 1938–May, 1943.

Diagnosis Class	Total Calls	
	Male	Female
Total Calls	13,961	17,992
Excluding Certain Causes[1]	13,891	15,050
Acute Respiratory	4,236	5,063
Minor Respiratory	3,590	4,384
Pneumonia	646	679
Accidents	3,813	2,423
Digestive Diseases	681	770
Diseases of Skin	968	875
Acute Communicable Diseases	852	792
Female Genital Diseases	—	808
Pregnancy & Complications of Pregnancy	—	3,154
Diseases of the Ear	589	594
Diseases of the Teeth & Gums	17	51
Asthma and Hayfever	299	501
Diseases of Organs of Vision	211	250
All other Causes	2,295	2,755

[1] Excluding circumcision and female genital diseases and pregnancy.

Appendix Table 2. Prevalence of persons who had major chronic disease, males and females, at specific ages, Eastern Health District of Baltimore, June, 1940–May, 1941.

Age Group	Per Cent with Major Chronic Disease	Number of Persons with Major Chronic Disease	Population (Persons)
	MALE		
Total	11.6	349	3,007
0–4	1.5	4	270
5–9	5.9	14	238
10–14	12.5	28	223
15–19	3.8	11	292
20–24	3.9	12	311
25–34	5.5	29	528
35–44	11.5	49	423
45–54	19.5	73	373
55–64	32.6	66	202
65+	42.9	63	147
	FEMALE		
Total	17.0	511	2,995
0–4	1.5	3	238
5–9	4.5	9	209
10–14	5.0	11	219
15–19	7.9	22	279
20–24	9.3	30	323
25–34	9.1	48	524
35–44	16.4	70	426
45–54	28.5	100	351
55–64	45.8	115	250
65+	52.5	103	196

Appendix Table 3. Annual incidence by age and sex of major chronic disease, Eastern Health District of Baltimore, June, 1938–May, 1943.

Age Groups	Rates per 1,000 population						
	Arthritis	Hypertensions	Heart Excl. Rheumatic Heart	Rheumatic Heart Disease	Total Heart Disease	Neuroses	All Other Conditions
	Male						
Total	2.9	2.2	4.9	0.6	5.4	0.8	7.3
0–4	0	0	1.3	1.3	2.6	0	0
5–9	1.2	0	1.2	3.6	4.8	1.2	2.4
10–14	0	0	0	1.2	1.2	0	7.1
15–19	1.0	0	0	1.0	1.0	0	1.0
20–24	0	0	1.1	0	1.1	1.1	5.6
25–34	1.1	1.1	1.1	0	1.1	0.6	6.7
35–44	2.7	2.0	3.3	0	3.3	2.0	8.7
45–54	6.6	2.2	6.6	0	6.6	0.7	8.1
55–64	12.0	10.7	13.4	0	13.4	0	17.4
65+	7.9	15.8	41.3	0	41.3	2.0	23.6
	Female						
Total	6.3	4.3	5.6	0.5	6.1	3.5	8.5
0–4	0	0	0	1.3	1.3	0	2.6
5–9	0	0	0	0	0	0	5.5
10–14	1.2	1.2	0	1.2	1.2	1.2	3.6
15–19	1.0	0	0	1.0	1.0	1.0	4.1
20–24	0	2.1	0	0	0	2.1	4.1
25–34	3.3	0.6	0	1.1	1.1	5.0	4.4
35–44	5.1	1.9	3.8	0	3.8	3.8	10.2
45–54	12.9	10.6	9.1	0	9.1	9.1	12.9
55–64	23.2	15.1	23.2	0	23.2	7.0	20.9
65+	18.4	15.6	29.7	0	29.7	0	19.8

MORBIDITY AMONG MALES AND FEMALES AT SPECIFIC AGES—EASTERN HEALTH DISTRICT OF BALTIMORE[1]

ELIZABETH H. JACKSON

IN THE United States, growing interest in disability and medical care insurance, as well as group plans for provision of medical service presents an increasing need for statistics on the incidence of illness among persons of opposite sex and of different ages. Since 1920 data of this type have been made available for certain population groups by special morbidity studies of families. One of the studies gives illness rates by sex and age for the population of sample areas in the United States: the Committee on the Costs of Medical Care study of 1928–1931 (1). Two other studies provide data for local areas in Maryland: one made in Hagerstown from 1921–1924 (2) and the other conducted in the Eastern Health District of Baltimore from 1938–1943.

A number of preliminary reports of the study in the Eastern Health District of Baltimore have been published (3, 4). The purpose of the present paper is to make available data from this study on illness by age and sex in more detail than has been given in the past.

NATURE OF THE STUDY AND DATA

The method of sampling for the study has been described in previous reports (3, 5). It is sufficient to indicate here that the sample population included all white families that lived in thirty-four city blocks and were willing to cooperate in the study. The plan was to follow families that lived in houses in the sample blocks rather than to follow a selected group of families. As a result no effort was made to continue visiting families that moved out of houses in the surveyed area during the study, but new white families that moved into the area were added to the study.

Monthly visits were made to the families to obtain records

[1] From the Milbank Memorial Fund and the United States Public Health Service.

of the occurrence of illness. At the first interview a record was made of all illness present on the day of the visit. At subsequent interviews, records were made of all illnesses which had occurred since the preceding visit.

In studies of illness based on periodic interviews, illness is generally understood as including any affection or disturbance of health persisting for a considerable part of one or more days. However, no specific definition of illness was imposed from without the study. Records of illness were based on reports of some responsible person in the household (usually the housewife) of sicknesses she experienced, or observed in the family. Note was made in the record of whether illnesses caused disability, that is, inability to work or perform usual activities, or caused confinement to the house, or confinement to bed. Defects or impairments were recorded only if they caused disability or received medical attention.

Table 1. Age distribution of males and females in the morbidity study in thirty-four city blocks in the Eastern Health District of Baltimore compared with the age distribution of all white males and females in the District.

Age Groups	Sample White Population[1]		Total White Population of the District—1939[2,3]	
	Male	Female	Male	Female
	per cent			
All Ages	100.0	100.0	100.0	100.0
0–4	7.6	7.1	6.9	6.3
5–9	8.2	6.9	6.9	6.9
10–14	8.2	8.0	8.9	8.2
15–19	9.9	9.3	10.1	9.7
20–24	8.7	9.2	10.0	10.3
25–34	17.4	17.2	18.0	17.3
35–44	14.6	14.9	14.2	14.2
45–54	13.2	12.5	12.7	12.6
55–64	7.3	8.2	7.3	8.0
65+	4.9	6.7	5.0	6.5
Total Population	10,282	10,550	21,295	21,988

[1] Excluding 3 males and 2 females of unknown age.
[2] Excluding 142 males and 221 females of unknown age.
[3] Data from Reed, Lowell J.; Fales, W. Thurber; and Badger, George F.: Family Studies in the Eastern Health District. I. General Characteristics of the Population. *The American Journal of Hygiene*, January, 1943, 37, No. 1, p. 49.

The present analysis is based on all families observed two or more months for illness. The sample population for the analysis includes 20,832 person years of life: 10,282 males and 10,550 females. As shown in Table 1, the distribution of each sex by age was similar.[2] The age composition of each sex in the sample population was also representative of the age distribution of white males and white females in the Eastern Health District in 1939 (6).

The procedure of counting cases of illness for this analysis is as follows: Acute illness includes sole or primary diagnosis. Chronic illness includes all diagnoses of chronic disease; that is, a person may have arthritis and later develop heart disease. Both are counted as cases of chronic disease. If there were disability, disabling days were assigned only to the particular chronic disease which caused the disability.

The population is composed of person-years of life of people who were observed for varying time periods in the thirty-four blocks which were studied from three to five years. A person observed for five years was counted as five person-years of life. If that same person reported the presence of diabetes during the first year of the study, he was counted as a diabetic also in the subsequent four years of his observation. A more complete discussion of the statistical treatment of chronic cases is included in the preceding article, "Cause of Illness Among Males and Females."

Total Morbidity

During the study an average of 1,500 illnesses per 1,000 population occurred annually. As shown in Table 2, the rates of disabling and "bed" illness were 601 and 322 respectively. Illness caused 16 days of disability and 5 days of confinement to bed per person per year.

Most of the cases of illness were classed as acute but the

[2] As far as the white population of the Eastern Health District is concerned, the district is considered fairly representative of the localities in Baltimore in which the wage earning population lives. That is, it contains some families in relatively poor economic circumstances, relatively few families in the professional class, and no families that can be classed as wealthy.

Classification of Illness and Days of Illness	All Illness[1]	Acute[2]	Chronic[2]
	rate per 1,000 population		
Total Illness	1,499.6	1,261.4	238.2
Nondisabling	898.2	735.5	162.7
Disabling	601.4	525.9	75.5
Bed	321.9	278.5	43.4
Disabling Days	16,387.2	5,841.3	10,545.9
Bed Days	5,001.8	1,958.7	3,043.1

[1] Excluding 3 cases (2 acute and 1 chronic) and 94 disabling days (93 for acute illness and 1 for chronic case) with unknown age.

[2] Acute illness includes sole or primary diagnoses. Chronic illness includes all diagnoses of chronic disease; that is, a person may suffer from both arthritis and heart disease; both are counted as cases. If there were disability, disabling days were assigned only to the particular chronic disease which caused the disability.

Table 2. Annual rate of illness (acute and chronic) and of sick days according to degree of severity. Eastern Health District of Baltimore, June, 1938–May, 1943.

majority of the disabling and "bed" days were due to chronic illness. Specifically, acute diagnoses were responsible for 85 per cent of all illness. They formed the same proportion of illness resulting in disability and confinement to bed, but only a third of the days of disability and confinement to bed were due to such illness.[3]

Morbidity by Sex

Some dissimilarity was found in rates of illness for the two sexes (Tables 3 and 4, Appendix Tables 1–4). The rates were somewhat closer for illnesses causing disability and confinement to bed than were the rates of nondisabling illness. Excluding female genital and puerperal diagnoses, the annual rate of all illness per 1,000 population was 1,234 for males and

[3] The majority of the acute illnesses were minor respiratory in nature. Other important causes of acute illness were minor digestive disturbances and accidents. The chief chronic illnesses included: mental disease or mental deficiency, neurasthenia or nervous breakdown, heart disease, hypertension or high blood pressure, arthritis, diabetes, varicose veins, gall-bladder disease, ulcer of the stomach or duodenum, chronic nephritis, cancer, rheumatic disease, tuberculosis, syphilis, and anemia. These were classed as major chronic diseases. Minor chronic diseases included: neuralgia, neuritis, lumbago, hemorrhoids, chronic indigestion, chronic cold and cough, chronic bronchitis, sinusitis, asthma, chronic skin conditions, backache, and other ill-defined complaints which were reported as chronic conditions. In the present paper defects or impairments causing disability or receiving medical attention were also classed as chronic illness.

Degree of Severity and Type of Illness	Male	Female	Female (Excluding Female Genital and Puerperal Diagnoses)	Ratio of the Female to Male (Excluding Female Genital and Puerperal Diagnoses)
	Rate per 1,000 population			
Total Illness	1,234.1	1,758.4	1,661.0	1.35
Acute	1,043.3	1,473.9	1,387.4	1.33
Chronic	190.8	284.5	273.6	1.43
Nondisabling	710.7	1,081.0	1,049.1	1.48
Acute	590.1	877.2	853.6	1.45
Chronic	120.6	203.8	195.5	1.62
Disabling	523.4	677.4	611.9	1.17
Acute	453.2	596.7	533.8	1.18
Chronic	70.2	80.7	78.1	1.11
Bed	265.3	377.0	322.6	1.22
Acute	226.3	329.3	276.8	1.22
Chronic	39.0	47.7	45.8	1.17

Table 3. Annual rate of acute and chronic illness of different degrees of severity, classified by sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

1,661 for females (Table 3). The excess of the female rate over the male rate was 48 per cent for nondisabling illness, 17 per cent for disabling illness, and 22 per cent for "bed" illness (excluding female genital and puerperal diagnoses). The higher rates for females were found for both acute and chronic illness.

As indicated in Table 4, the annual rate of disabling days was 16,301 and the annual rate of "bed" days was 4,953 per 1,000 males. Corresponding rates for females were 15,344 and 4,488 if illnesses resulting from female genital and puerperal diagnoses are excluded. This was a 6 per cent lower rate of disabling days and a 9 per cent lower rate of "bed" days among females than among males. Rates for the two sexes showed even greater similarity if days resulting from female genital and puerperal diagnoses are included.

Lower rates of days of disability and confinement to bed among females than among males were found for chronic but

Degree of Severity and Type of Illness	Male	Female	Female (Excluding Female Genital and Puerperal Diagnoses)	Ratio of Female to Male (Excluding Female Genital and Puerperal Diagnoses)
	Rate per 1,000 population			
Disabling Days	16,300.7	16,471.6	15,343.5	0.94
Acute Illness	4,990.0	6,671.1	5,628.0	1.13
Chronic Illness	11,310.7	9,800.5	9,715.5	0.86
Bed Days	4,953.1	5,049.1	4,488.5	0.91
Acute Illness	1,507.4	2,398.5	1,849.5	1.23
Chronic Illness	3,445.7	2,650.6	2,639.0	0.77
	Number of days			
Disabling Days	167,604	173,775	161,874	
Acute Illness	51,307	70,380	59,376	
Chronic Illness	116,297	103,395	102,498	
Bed Days	50,928	53,268	47,353	
Acute Illness	15,499	25,304	19,512	
Chronic Illness	35,429	27,964	27,841	

Table 4. Annual rate of disabling and bed days for acute and chronic illness, classified by sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

not for acute illness. For chronic illness the ratio of the female rate (excluding female genital and puerperal diagnoses) to the male rate was 0.86 for days of disability and 0.77 for days confined to bed. Corresponding ratios for acute illness were 1.13 and 1.23. In part, the relatively lower ratios for females evidenced by chronic illness were due to the fact that a smaller number of chronic illnesses of very long duration of disability were reported for females than for males.

For acute illness of different degrees of severity, the average duration of illness was similar for each sex whether or not female genital and puerperal diagnoses are included (Table 5). For example, the average number of disabling days per disabling illness was 11.0 for males and 11.2 for females (10.5 if female genital and puerperal diagnoses are excluded) and the rate of "bed" days per "bed" illness was 6.7 for males and 7.3

Degree of Severity	Male	Female	Female (Excluding Female Genital and Puerperal Diagnoses)
Sick Days Per Illness	19.5	20.1	19.6
Disabling Days Per Disabling Illness	11.0	11.2	10.5
Days Confined to House Per Illness Confined to House	8.1	9.3	8.7
Days Confined to Bed Per Illness Confined to Bed	6.7	7.3	6.7

Table 5. Average duration of acute illness classified by degree of severity and sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

for females (6.7 if female genital and puerperal diagnoses are excluded).

Morbidity by Age and Sex

Rates of all illness classified by different degrees of severity, shown in Table 6 and Figure 1, declined from a peak at ages under 5 years to a low level in the 15–34 year age group, and then rose in the age group 55 years and older. In comparison, rates of days of disability and confinement to bed increased sharply in old age.

As indicated earlier in the paper, most of the illnesses in each degree of severity class were due to acute causes but the majority of the days of disability and confinement to bed resulted

Table 6. Annual rate of all illness and days of illness, classified by degree of severity and by age. Eastern Health District of Baltimore, June, 1938–May, 1943.

Classification of Illness and Days of Illness	Age Groups					
	All Ages	0–4	5–14	15–34	35–54	55+
	rate per 1,000 population					
Total Illness	1,499.6	2,957.1	1,729.1	1,159.6	1,307.0	1,734.8
Nondisabling	898.2	1,788.0	728.2	704.4	871.6	1,178.1
Disabling	601.4	1,169.1	1,000.9	455.2	435.4	556.7
Bed	321.9	547.5	492.9	275.3	245.8	280.1
Disabling Days	16,387.2	13,804.9	16,572.2	8,954.2	13,775.8	42,576.5
Bed Days	5,001.8	3,970.1	6,090.3	4,263.0	3,865.9	8,580.0

from chronic causes. In Tables 7, 8, 10, and 11 (Appendix Tables 1–4) and the discussion which follows, it is shown that rates of acute illness and days of acute illness were relatively high at young ages whereas rates of chronic illness and days of chronic illness increased sharply in old age.

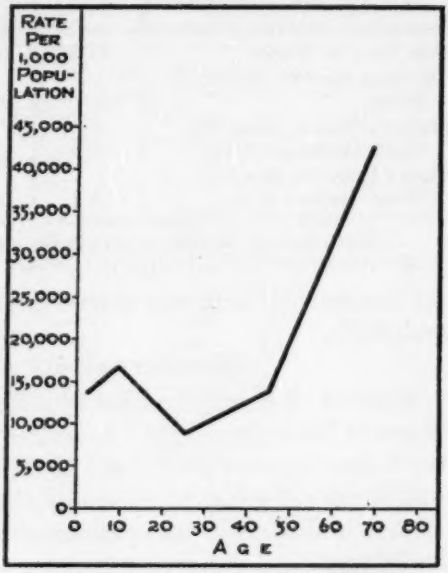

Fig. 1. Age-specific rate of disabling days per 1,000 population. Eastern Health District of Baltimore, June, 1938–May, 1943.

Acute Illness. The annual rate of acute illness per 1,000 population (Table 7) dropped from 2,936 at ages under 5 years to 1,633 in the 5–14 year age group, and 1,055 at ages 15–34. At ages over 34 years the rate changed only slightly from the level to which it declined in the 15–34 year age group. The rate of nondisabling illness changed very little at ages above 4 years. However, the rate of disabling illness declined approximately 50 per cent at ages 15–34 and maintained about the same level at older ages.

Comparison of rates of acute illness of different degrees of severity for the two sexes by age shows that the female rate tended to be similar to the male rate up to age 15, but consistently higher than the male rate at ages over 15 years, regardless of whether female genital and puerperal diagnoses are included. From ages 15–54, the excess of the female rate over the male rate for all acute illness was from 54 to 87 per cent if female genital and puerperal diagnoses are excluded and from 76 to 100 per cent if such diagnoses are included.

Degree of Severity	Age Groups					
	All Ages	0–4	5–14	15–34	35–54	55+
	BOTH SEXES					
Total Illness	1,261.4	2,936.3	1,633.3	1,055.4	996.2	1,006.4
Nondisabling	735.5	1,775.0	675.4	631.0	647.9	694.4
Disabling	525.9	1,161.3	957.9	424.4	348.3	312.0
Confined to House	481.5	1,100.8	878.7	384.4	316.2	280.1
Confined to Bed	278.5	542.9	465.9	253.3	196.3	152.3
	MALE					
Total Illness	1,043.3	3,043.5	1,576.1	763.8	665.3	765.7
Nondisabling	590.1	1,858.1	659.6	455.4	412.9	507.6
Disabling	453.2	1,185.4	916.5	308.4	252.4	258.1
Confined to House	408.5	1,120.2	836.6	267.8	223.3	225.5
Confined to Bed	226.3	560.1	448.2	160.5	132.5	127.5
	FEMALE					
Total Illness	1,473.9	2,825.4	1,695.0	1,341.7	1,323.2	1,198.9
Nondisabling	877.2	1,689.2	692.4	803.4	880.2	843.9
Disabling	596.7	1,136.2	1,002.6	538.3	443.0	355.0
Confined to House	552.7	1,080.7	924.1	498.8	408.0	323.8
Confined to Bed	329.3	525.1	485.0	344.4	259.4	172.1
	FEMALE (EXCLUDING FEMALE GENITAL AND PUERPERAL DIAGNOSES)					
Total Illness	1,387.4	2,824.1	1,672.6	1,173.5	1,241.4	1,194.4
Nondisabling	853.6	1,689.2	687.3	767.0	844.8	841.9
Disabling	533.8	1,134.9	985.3	406.5	396.6	352.5
Confined to House	492.6	1,079.4	911.3	370.1	365.1	321.2
Confined to Bed	276.8	525.1	479.9	227.4	224.5	169.5

Table 7. Annual rate (per 1,000 population) of acute illness of different degrees of severity, classified by age and sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

To provide a comparison of acute illness for the two sexes by age not affected by the higher total rate of illness among females, Figure 2 is presented. For each sex the ratio of the rate of illness in each age group to the rate of illness for all ages (excluding female genital and puerperal diagnoses) is shown. The figure brings out the similarity of the relative morbidity for the two sexes at specific ages. However, the

ratios were somewhat higher among males than females at young ages and among females than males at older ages.

Except for a sharp peak at ages under 5 years, the rate of nondisabling days of acute illness (Table 8) changed only slightly in different age groups. However, the rate of disabling days per 1,000 population declined from 8,303 at ages 5–14 to 4,409 in the 15–34 year age group. The rate of days confined to bed also declined sharply in corresponding age groups. Above the 15–34 year age group, the rate of disabling days rose consistently, but the rate of days causing confinement to bed showed some decline.

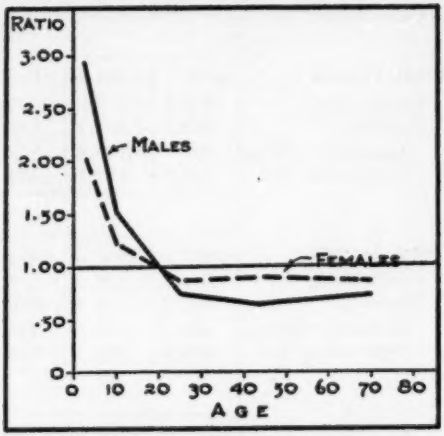

Fig. 2. Ratio of age-specific rates of acute illness to rate for all ages for males and females (excluding female genital and puerperal diagnoses). Eastern Health District of Baltimore, June, 1938–May, 1943.

Rates of days of acute illness of different degrees of severity were similar for the two sexes up to age 15. Above that age the female rate was considerably above the male rate even if female genital and puerperal diagnoses are excluded.

For acute illness of different degrees of severity the average duration of illness per case (Table 9) was at a low level in the 5–14 year age group and rose consistently at older ages. From ages 5–14 to 55 and older the number of disabling days per disabling illness increased from 9 to 18 and the number of "bed" days per "bed" illness rose from 6 to 10. At specific ages the average duration of illness of each degree of severity was similar for the two sexes.

Chronic Illness. The rate per 1,000 population of chronic illness (Table 10) rose consistently with age from 21 for ages

under 5 years to 104 at ages 15–34, and 728 for ages 55 and older. However, the rate per 1,000 population of disabling chronic illness reached a small early peak of 43 in the 5–14 year age group, declined to 31 at ages 15–34, and then rose to a high level of 245 at ages 55 and older.

The rate of chronic illness was lower among females than among males up to age 15, and was consistently about 45 per

Table 8. Annual rate (per 1,000 population) of days of acute illness of different degrees of severity, classified by age and sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

Degree of Severity	Age Groups					
	All Ages	0–4	5–14	15–34	35–54	55+
	BOTH SEXES					
Total Sick Days	25,071.0	48,100.8	23,781.3	20,710.7	23,638.1	28,505.0
Nondisabling	19,229.7	35,425.9	15,478.8	16,301.5	19,025.6	22,927.1
Disabling	5,841.3	12,674.9	8,302.5	4,409.2	4,612.5	5,577.9
Confined to House	4,240.4	10,570.2	6,264.4	3,019.8	3,174.7	3,861.5
Confined to Bed	1,958.7	3,846.6	2,715.6	1,732.5	1,507.8	1,575.8
	MALE					
Total Sick Days	20,338.2	48,283.9	23,422.7	14,517.3	16,545.7	24,604.8
Nondisabling	15,348.2	35,393.9	15,511.5	11,451.6	12,988.4	19,526.7
Disabling	4,990.0	12,890.0	7,911.2	3,065.7	3,557.3	5,078.1
Confined to House	3,293.4	10,640.7	5,911.2	1,656.8	2,030.5	2,896.4
Confined to Bed	1,507.4	4,039.6	2,569.6	917.3	1,053.3	1,275.7
	FEMALE					
Total Sick Days	29,683.7	47,911.4	24,167.8	26,790.7	30,647.0	31,624.6
Nondisabling	23,012.6	35,459.9	15,443.5	21,062.6	24,991.7	25,646.9
Disabling	6,671.1	12,452.4	8,724.3	5,728.1	5,655.3	5,977.7
Confined to House	5,163.4	10,497.4	6,645.2	4,357.9	4,305.5	4,633.5
Confined to Bed	2,398.5	3,646.8	2,873.0	2,532.8	1,957.0	1,815.8
	FEMALE (EXCLUDING FEMALE GENITAL AND PUERPERAL DIAGNOSES)					
Total Sick Days	27,164.9	47,910.1	23,760.7	22,482.6	27,407.3	31,405.4
Nondisabling	21,536.9	35,457.7	15,104.0	18,851.4	22,755.8	25,489.5
Disabling	5,628.0	12,452.4	8,656.7	3,631.2	4,651.5	5,915.9
Confined to House	4,301.6	10,496.0	6,603.7	2,583.4	3,519.6	4,589.5
Confined to Bed	1,849.5	3,646.8	2,857.1	1,323.2	1,557.3	1,781.4

Degree of Severity	Age Groups					
	All Ages	0–4	5–14	15–34	35–54	55+
	BOTH SEXES					
Sick Days Per Illness	19.9	16.4	14.6	19.6	23.7	28.3
Disabling Days Per Disabling Illness	11.1	10.9	8.7	10.4	13.2	17.9
Days Confined to House Per Illness Confined to House	8.8	9.6	7.1	7.9	10.0	13.8
Days Confined to Bed Per Illness Confined to Bed	7.0	7.1	5.8	6.8	7.7	10.3
	MALE					
Sick Days Per Illness	19.5	15.9	14.9	19.0	24.9	32.1
Disabling Days Per Disabling Illness	11.0	10.9	8.6	9.9	14.1	19.7
Days Confined to House Per Illness Confined to House	8.1	9.5	7.1	6.2	9.1	12.8
Days Confined to Bed Per Illness Confined to Bed	6.7	7.2	5.7	5.7	7.9	10.0
	FEMALE					
Sick Days Per Illness	20.1	17.0	14.3	20.0	23.2	26.4
Disabling Days Per Disabling Illness	11.2	11.0	8.7	10.6	12.8	16.8
Days Confined to House Per Illness Confined to House	9.3	9.7	7.2	8.7	10.6	14.3
Days Confined to Bed Per Illness Confined to Bed	7.3	6.9	5.9	7.4	7.5	10.6
	FEMALE (EXCLUDING FEMALE GENITAL AND PUERPERAL DIAGNOSES)					
Sick Days Per Illness	19.6	17.0	14.2	19.2	22.1	26.3
Disabling Days Per Disabling Illness	10.5	11.0	8.8	8.9	11.7	16.8
Days Confined to House Per Illness Confined to House	8.7	9.7	7.2	7.0	9.6	14.3
Days Confined to Bed Per Illness Confined to Bed	6.7	6.9	6.0	5.8	6.9	10.5

Table 9. Average duration of acute illness of different degrees of severity, classified by sex and age. Eastern Health District of Baltimore, June, 1938–May, 1943.

Degree of Severity	Age Groups					
	All Ages	0–4	5–14	15–34	35–54	55+
	BOTH SEXES					
Total Illness	238.2	20.8	95.8	104.2	310.8	728.4
Nondisabling	162.7	13.0	52.8	73.4	223.7	483.7
Disabling	75.5	7.8	43.0	30.8	87.1	244.7
Bed	43.4	4.6	27.0	22.0	49.5	127.8
	MALE					
Total Illness	190.8	23.0	120.8	83.5	244.3	584.9
Nondisabling	120.6	19.2	75.2	55.7	157.4	353.0
Disabling	70.2	3.8	45.6	27.8	86.9	231.9
Bed	39.0	3.8	32.6	20.3	45.2	110.8
	FEMALE					
Total Illness	284.5	18.5	68.9	124.4	376.5	843.2
Nondisabling	203.8	6.6	28.7	90.7	289.2	588.3
Disabling	80.7	11.9	40.2	33.7	87.3	254.9
Bed	47.7	5.3	21.1	23.6	53.7	141.5
	FEMALE (EXCLUDING FEMALE GENITAL AND PUERPERAL DIAGNOSES)					
Total Illness	273.6	18.5	68.9	116.2	353.0	833.0
Nondisabling	195.5	6.6	28.7	84.4	270.9	581.3
Disabling	78.1	11.9	40.2	31.8	82.1	251.8
Bed	45.8	5.3	21.1	22.0	49.9	139.6

Table 10. Annual rate (per 1,000 population) of chronic illness of different degrees of severity, classified by age and sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

cent higher among females than among males at ages over 15 years (regardless of whether female genital and puerperal diagnoses are included). In Figure 3, ratios of the rate of chronic illness by age to the rate of chronic illness for all ages are shown for the two sexes (excluding female genital and puerperal diagnoses). As indicated in the figure, a rise in the male ratio over the female ratio occurred in the 5–14 year age group. Above age 15, ratios for the two sexes were generally similar.

The rate of disabling days of chronic illness (Table 11) was 8,270 per 1,000 population in the 5–14 year age group, declined to 4,545 at ages 15–34, and rose to a high level of 36,999 at age 55 and older. The rate of "bed" days of chronic illness in corresponding age groups followed the same pattern as was noted for disabling days.

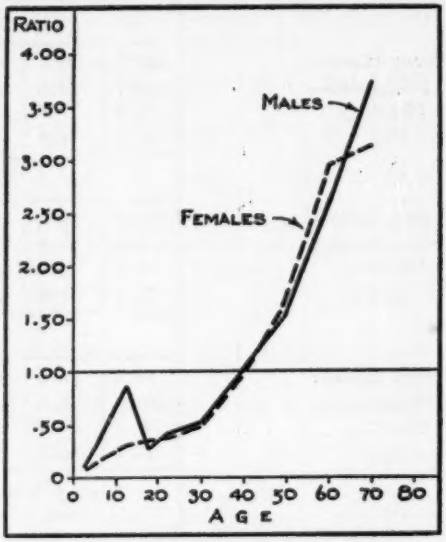

Fig. 3. Ratio of age-specific rates of chronic illness to rate for all ages for males and females (excluding female genital and puerperal diagnoses). Eastern Health District of Baltimore, June, 1938–May, 1943.

At most ages, the rates of disabling days and "bed" days of chronic illness were higher among males than among females (whether or not female genital and puerperal diagnoses are included.) For disabling days, the excess of the male rate over the female rate was approximately 50 per cent at ages 5–14 and roughly 75 per cent for ages 35–54.

Comparison with Other Studies

In the Hagerstown and Committee on the Costs of Medical Care studies, rates of all illness were lower than in the Baltimore study. The rate of all illness per 1,000 population was 1,081 in the Hagerstown study and 850 in the CCMC study compared with 1,500 in the study of the Eastern Health District of Baltimore.

Rates of all illness by age in the Eastern Health District of Baltimore are compared, in Figure 4, with those reported in Hagerstown, and in the CCMC study. The age curves for the three are similar in shape but the rates obtained in the Eastern

Degree of Severity	Age Groups					
	All Ages	0–4	5–14	15–34	35–54	55+
	Rate per 1,000 population					
	Both sexes					
Disabling Days	10,545.9	1,130.0	8,269.7	4,545.1	9,163.2	36,998.6
Bed Days	3,043.1	123.5	3,374.7	2,530.5	2,358.0	7,004.2
	Male					
Disabling Days	11,310.7	122.8	9,686.2	4,570.8	11,840.9	39,161.0
Bed Days	3,445.7	104.9	5,076.4	2,546.2	3,292.7	6,341.0
	Female					
Disabling Days	9,800.5	2,172.0	6,742.8	4,519.8	6,517.1	35,269.0
Bed Days	2,650.6	142.9	1,540.5	2,515.0	1,434.4	7,534.7
	Female (excluding female genital and puerperal diagnoses)					
Disabling Days	9,715.5	2,172.0	6,742.8	4,479.7	6,294.8	35,202.7
Bed Days	2,639.0	142.9	1,540.5	2,503.3	1,408.0	7,532.8

Table 11. Annual rate of disabling and bed days due to chronic illness, classified by age and sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

Health District population are markedly higher than was true of either of the other studies. The differences were especially great among the very young and in the middle and old-age groups. In the middle and old age groups the level of morbidity in the Eastern Health District population was affected somewhat by the way of counting cases of chronic disease.

Summary

A study of the age specific illness experience for males and females in a sample of families in the Eastern Health District of Baltimore has been presented. The chief findings can be summarized as follows.

An annual rate of 1,500 illnesses per 1,000 population occurred, (601 disabling illnesses, and 322 "bed" illnesses). Each year 16 days of disability and 5 days in bed per person observed

resulted from sickness. Eighty-five per cent of the cases of illness of each degree of severity were classed as acute, but two-thirds of the days of disability and confinement to bed were a result of chronic illness.

Comparison of illness rates among males and females (excluding female genital and puerperal diagnoses) showed the following facts. First, rates of acute and chronic illness of different degrees of severity were somewhat higher among females than among males. The difference was greater for nondisabling illness than for more severe illness, that is, illness which caused disability. Second, rates of disabling days and "bed" days due to all illness were similar for the two sexes. However, rates of disabling days and bed days were somewhat lower among females than among males for chronic illness and were somewhat higher among females than among males for acute illness.

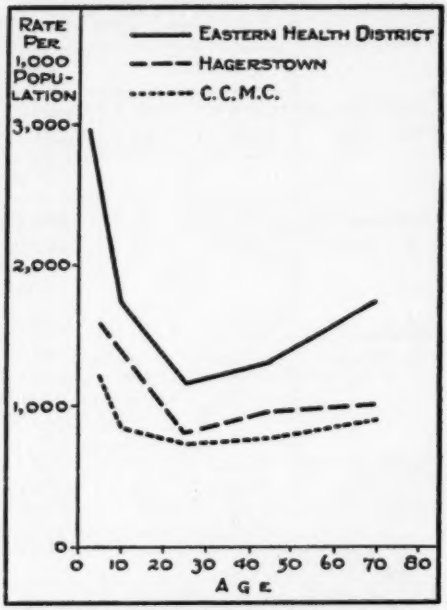

Fig. 4. Age-specific rates of illness in the Eastern Health District of Baltimore, Hagerstown, and C.C.M.C. studies. (Data taken from (1) Sydenstricker, Edgar: The Age Curve of Illness. *Public Health Reports*, June 10, 1927, 42, Part I, pp. 1566–1567; and (2) Collins, Selwyn D.: Cases and Days of Illness Among Males and Females with Special Reference to Confinement to Bed. *Public Health Reports*, January 12, 1940, 55, Part I, pp. 53–55, and Eastern Health District of Baltimore study for June, 1938–May, 1943.)

Rates of illness and days of acute illness of different degrees of severity were highest at young ages, especially under 5 years

for nondisabling illness and under 15 years for more severe illness. The rates tended to be similar for the two sexes up to age 15, but higher among females than among males at ages above 15 years, regardless of whether female genital and puerperal diagnoses are included.

Rates of illness and days of illness of different degrees of severity due to chronic causes increased sharply in old age. At ages 5–14 small rises occurred in the rates of illness and of days of illness causing disability or confinement to bed. The female illness rate was below the male rate up to age 15 and above it at older ages, even when female genital and puerperal diagnoses are excluded. For days of disabling illness, the female rate was below the male rate at most ages even if female genital and puerperal diagnoses are included.

Acknowledgments

Acknowledgments are made to the Johns Hopkins School of Hygiene and Public Health, especially to the Departments of Epidemiology and Biostatistics for generous assistance and cooperation which greatly facilitated the carrying on of the study of illness in the Eastern Health District of Baltimore; to the Baltimore City Health Department for generous assistance and cooperation, especially in the matter of relationships with the medical profession.

An especial acknowledgment is made to Miss F. Ruth Phillips of the United States Public Health Service, who was in immediate charge of the collection of the morbidity data in the study in the Eastern Health District of Baltimore.

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Appendix Table 1. Number of acute illnesses of different degrees of severity, classified by age and sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

Degree of Severity	Age Groups					
	All Ages	0–4	5–14	15–34	35–54	55+
	Both Sexes					
Total Illness	26,277	4,516	5,318	7,883	5,718	2,842
Nondisabling	15,322	2,730	2,199	4,713	3,719	1,961
Disabling	10,955	1,786	3,119	3,170	1,999	881
Confined to House	10,031	1,693	2,861	2,871	1,815	791
Confined to Bed	5,801	835	1,517	1,892	1,127	430
	Male					
Total Illness	10,727	2,380	2,662	2,826	1,898	961
Nondisabling	6,067	1,453	1,114	1,685	1,178	637
Disabling	4,660	927	1,548	1,141	720	324
Confined to House	4,200	876	1,413	991	637	283
Confined to Bed	2,327	438	757	594	378	160
	Female					
Total Illness	15,550	2,136	2,656	5,057	3,820	1,881
Nondisabling	9,255	1,277	1,085	3,028	2,541	1,324
Disabling	6,295	859	1,571	2,029	1,279	557
Confined to House	5,831	817	1,448	1,880	1,178	508
Confined to Bed	3,474	397	760	1,298	749	270
	Female (excluding female genital and puerperal diagnoses)					
Total Illness	14,637	2,135	2,621	4,423	3,584	1,874
Nondisabling	9,005	1,277	1,077	2,891	2,439	1,321
Disabling	5,632	858	1,544	1,532	1,145	553
Confined to House	5,197	816	1,428	1,395	1,054	504
Confined to Bed	2,920	397	752	857	648	266

Appendix Table 2. Number of days of acute illness of different degrees of severity, classified by age and sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

Degree of Severity	Age Groups					
	All Ages	0–4	5–14	15–34	35–54	55+
	BOTH SEXES					
Total Sick Days	522,280	73,979	77,432	154,688	135,683	80,498
Nondisabling	400,593	54,485	50,399	121,756	109,207	64,746
Disabling	121,687	19,494	27,033	32,932	26,476	15,752
Confined to House	88,357	16,257	20,397	22,555	18,225	10,905
Confined to Bed	40,803	5,916	8,842	12,940	8,655	4,450
	MALE					
Total Sick Days	209,117	37,758	39,561	53,714	47,205	30,879
Nondisabling	157,810	27,678	26,199	42,371	37,056	24,506
Disabling	51,307	10,080	13,362	11,343	10,149	6,373
Confined to House	33,863	8,321	9,984	6,130	5,793	3,635
Confined to Bed	15,499	3,159	4,340	3,394	3,005	1,601
	FEMALE					
Total Sick Days	313,163	36,221	37,871	100,974	88,478	49,619
Nondisabling	242,783	26,807	24,200	79,385	72,151	40,240
Disabling	70,380	9,414	13,671	21,589	16,327	9,379
Confined to House	54,474	7,936	10,413	16,425	12,430	7,270
Confined to Bed	25,304	2,757	4,502	9,546	5,650	2,849
	FEMALE (EXCLUDING FEMALE GENITAL AND PUERPERAL DIAGNOSES)					
Total Sick Days	286,590	36,220	37,233	84,737	70,125	49,275
Nondisabling	227,214	26,806	23,668	71,051	65,696	39,993
Disabling	59,376	9,414	13,565	13,686	13,429	9,282
Confined to House	45,382	7,935	10,348	9,737	10,161	7,201
Confined to Bed	19,512	2,757	4,477	4,987	4,496	2,795

Appendix Table 3. Number of chronic illnesses of different degrees of severity, classified by age and sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

Degree of Severity	Age Groups					
	All Ages	0–4	5–14	15–34	35–54	55+
	Both Sexes					
Total Illness	4,963	32	312	778	1,784	2,057
Nondisabling	3,390	20	172	548	1,284	1,366
Disabling	1,573	12	140	230	500	691
Bed	904	7	88	164	284	361
	Male					
Total Illness	1,962	18	204	309	697	734
Nondisabling	1,240	15	127	206	449	443
Disabling	722	3	77	103	248	291
Bed	401	3	55	75	129	139
	Female					
Total Illness	3,001	14	108	469	1,087	1,323
Nondisabling	2,150	5	45	342	835	923
Disabling	851	9	63	127	252	400
Bed	503	4	33	89	155	222
	Female (excluding female genital and puerperal diagnoses)					
Total Illness	2,886	14	108	438	1,019	1,307
Nondisabling	2,062	5	45	318	782	912
Disabling	824	9	63	120	237	395
Bed	483	4	33	83	144	219

Appendix Table 4. Number of disabling and bed days due to chronic illness, classified by age and sex. Eastern Health District of Baltimore, June, 1938–May, 1943.

Degree of Severity	Age Groups					
	All Ages	0–4	5–14	15–34	35–54	55+
	Both Sexes					
Disabling Days	219,692	1,738	26,926	33,947	52,597	104,484
Bed Days	63,393	190	10,988	18,900	18,535	19,780
	Male					
Disabling Days	116,297	96	16,360	16,912	33,782	49,147
Bed Days	35,429	82	8,574	9,421	9,394	7,958
	Female					
Disabling Days	103,395	1,642	10,566	17,035	18,815	55,337
Bed Days	27,964	108	2,414	9,479	4,141	11,822
	Female (excluding female genital and puerperal diagnoses)					
Disabling Days	102,498	1,642	10,566	16,884	18,173	55,233
Bed Days	27,341	108	2,414	9,435	4,065	11,819

ANNOTATIONS

PATTERNS OF LIVING IN PUERTO RICAN FAMILIES[1]

PATTERNS OF LIVING IN PUERTO RICAN FAMILIES is a report on a survey in 1946 of a sample of 1,044 families representative of the total Island population. The study was made by the Department of Home Economics of the University of Puerto Rico "as a basis for strengthening the home economics program and adapting it as fully as possible to the needs of the Island." Evidence descriptive of family living in Puerto Rican families of all socio-economic levels would afford a basis, it was hoped, "for education and service, not only to home economists but to all agencies working for improvement of living conditions in homes of the Island."

Data bearing on income and composition of families, on the physical standards of living, on education and cultural patterns, on food habits, and the adequacy of diets are presented in 230 tables. The main findings are discussed and interpreted by the authors in 260 pages of text and charts and illustrated with 56 photographs. Much has been written previously in the United States about the poverty of this Island Territory. This book gives a vivid portrayal of the primitive level of living of the majority of the population, of the poor and crowded housing conditions, of the dearth of facilities such as clothing, cooking and eating utensils, and all home furnishings, and of the inadequacies of the basic diet of rice, beans, and viandas.

From the mass of data presented, a few figures may be quoted that relate to the basic economic problem. Three-fourths of the families had annual incomes below $1,000 and nearly two-thirds

[1] Roberts, Lydia J. and Stefani, Rosa Luisa: PATTERNS OF LIVING IN PUERTO RICAN FAMILIES. Rio Piedras, P.R., The University of Puerto Rico, 1949.

had incomes below $750. The authors estimate that a minimum adequate diet for a family of five cost about $700. Only 8 per cent of the families had incomes of $2,000 or more. Large families are common in Puerto Rico and the average household included 5.4 persons. Rural families average 5.9 persons and comprise about two-thirds of the population. Overpopulation and the continued rapid increase of the population on this Island with an agricultural economy and few mineral and other natural resources constitute a basic problem in the improvement of living standards. Measures being taken by various government agencies to promote industrial development, to raise wages, to increase local production of low-cost goods that would replace expensive imported articles, to provide subsidized housing, and to improve sanitary facilities and health services throughout the Island are discussed.

The difficulties to be overcome in improving living conditions in Puerto Rico are not minimized by the authors. Stimulation of a desire for better living through education and assistance and instruction in the means of attaining a better life through self-help are recognized as fundamental to a successful attack on the problem. Although the amount of schooling has increased, a large percentage still receive little formal education. In 1946, at ages 15–19 years, 9 per cent had had no schooling and about 30 per cent had not gone beyond the 4th grade. Education through newspapers, magazines, etc. is not effective, since few families read them. Only about one-fourth of the families have a radio. Obviously, local community centers, clubs, and personal contact must be utilized to teach the people how to make better use of their resources, to improve their diet by home gardening, etc. The authors point to progress that has been made and are hopeful that concerted effort on the part of educational and other agencies will result in further progress. Many lines of attack are discussed.

This book should be of interest to all who are interested in Puerto Rico or in other underdeveloped areas. As an example of an intensive socio-economic investigation and an analysis of living conditions, it should interest home economists, public health workers, sociologists, and economists. Facts such as were gathered in Puerto Rico concerning the peoples' habits,

customs and needs are basic to formulating down-to-earth plans for betterment of living conditions.

DOROTHY G. WIEHL

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INDIANS OF THE URBAN NORTHWEST[1]

ONE of the most interesting areas of aboriginal culture in America was the Pacific Northwest area. Under the impact of a century of contact with white people, the old culture has been largely destroyed, and much of its content and meaning can never be recovered. The present work is a collection of papers by various scholars who have been working recently on the Northwest Coast culture.

As the editor states in her preface, " . . . this book only attempts to focus upon the southern section of the Pacific Northwest, upon western Washington, and southwestern British Columbia; it deals primarily with the Indians of these regions, all of whom spoke languages which have been classified as Coast Salish." The word "urban" in the title does not mean that the Indians are residents of the large cities, but rather an area along the inland waters which has felt strongly the effects of urbanization and industrialization.

The various papers in the book are written by specialists, and they are of more interest to specialists than to the general reader. The range is wide—diet, the Shaker religion, painting, music, coiled basketry, archaeology, language, physical type, folklore, etc.—so wide and so specialized, in fact, that one finishes with the feeling that he has seen a group of snapshots rather than an integrated movie.

Let us select a few items which would seem to be of interest to the readers of this particular review. The first chapter, "The Indians and Modern Society," by Dr. Smith, presents a brief summary of the adjustment of the Coast Salish to modern civilization. Dr. Smith points out that "Their record of adaptation to industrial society is certainly better than that of

[1] INDIANS OF THE URBAN NORTHWEST. Edited by Marian W. Smith. New York: Columbia University Press, 1949. 370 pp. $6.00.

many Indians classified as less primitive." She cites certain old economic practices and personal traits which may have assisted in this adjustment and concludes as follows: "To a certain extent Indian life in the urban Northwest just continued parallel to the effects of urbanization which dominated the area during the past century. The Coast Salish today are weighted down by amazingly few conflicts engendered by incompatibilities between the old and the new ways of life. Their major problems arise from their peculiar position as underprivileged members of modern society."

The paper on "Diet of a Food-Gathering People," by Trinita Rivera, is significant for its pioneer use of chemical analysis of Indian methods of preserving food. After analysis of two important items of Salish diet, smoked salmon and dried saskatoons, the author concludes that the Salish show very good sense about their diet. Their method of drying salmon she rates as "excellent according to modern nutritional standards." Thus, despite their lack of agriculture and domesticated animals, the Salish culture habits happened to provide them with a good year-round diet, so that they showed little sign of the common winter let-down arising from vitamin-C deficiency.

Helen Codere's brief paper on the Harrison Lake physical type is also of interest. Boas measured and described this type in 1891. It is characterized by "very small stature, a very flat nose with a very low bridge, and a very wide head and face." The stature of males is around 160 cm. on the average. Miss Codere finds this type persisting today in the same places where Boas found it. Its stability as a deviant type, in spite of some intermarriage with the tall Thompson Indians, suggests a Mendelian segregation of certain traits, but this problem awaits more data before the final answer can be given. However, the most interesting cultural datum about these short people is their own reaction to their size. Apparently they "do not feel small." The author surmises that certain Northwest Coast culture patterns which defined status in terms of personal achievement through inherited or acquired "power" might have made physical size completely unimportant to these people.

Another feature of the book is a personal document of some

fifty pages recorded from the narrative of John Fornsby, a famous old Salish shaman. In his ninety-two years this man has experienced almost the entire period of Northwest Coast contact with white civilization. This narrative is largely concerned with events, myths, shamanistic power, and ways of doing things in the old days. As such a document it has its value, but as a personal history it leaves much to be desired, for Fornsby never stands forth very clearly as a personality.

Other contributors to the book are Erna Gunther, Paul S. Wingert, George Herzog, Arden King, Morris Swadesh, Dorothy Leadbeater, June Collins, Eleanor Leacock, Joanne Schriver, and Betty U. Randall. The volume is well illustrated and it contains a glossary of tribal names and an extensive bibliography.

GUY B. JOHNSON

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THE PEOPLE OF ATLANTA[1]

IN HIS preface, the author states: "It should be pointed out that this study is not a treatise on urban demography in general, but consists of an elementary population study within a particular frame of reference." The value of the book, as the author sees it, is that " . . . . no investigator to the present time has focused attention directly upon the demographic study of a single large southern city. This study attempts to fill that gap." On page 26 he adds that " . . . . as far as the writer can ascertain, never have all the modern demographic techniques been applied to the population of one city and particularly to a southern city." After a careful reading, this reviewer feels that the study falls short of the mark.

Generally speaking, McMahan's accomplishment is in the reworking of some census data pertinent to Atlanta, some registration statistics for the State of Georgia, and the presentation of these in graphic form. There is an occasional comparison of the data of Atlanta with those of Nashville, Dallas,

[1] McMahan, C. A.: THE PEOPLE OF ATLANTA. Athens, Georgia: University of Georgia Press, 1950. Pp. xxiii, 257. $4.00.

New Orleans, and the urban population of the United States. In organization, a little less than a fifth of the book is devoted to an introduction which reviews some of the current elementary techniques of describing population data, and to a brief review of the literature. This is followed by a treatment of the standard categories of race and nativity composition, age composition, sex composition, martial status, educational status, occupational status, religious composition, fertility, mortality, migration, and growth of population, and a very brief summary and conclusion.

The population of Atlanta as enumerated in the Sixteenth Census of the United States consisted of 302,288 persons, of which 64 per cent were classed as native white, 1.4 per cent foreign-born white, and 34.6 per cent Negro. The age distribution is urban in character; there is a high concentration of persons in the working ages and a low concentration of persons among the young and the old, especially the old Negroes. The sex ratio is the lowest (79) for large cities. Marriages occur earlier in Atlanta than the average of comparable cities, and the proportion of marriages is higher than average. In terms of making a living, there are proportionately fewer self-employed in Atlanta than in other southern cities. A relatively high proportion of males are in service occupations, and a very large proportion of Negro women are in domestic service. The fertility rates of Atlanta are lower than those of the urban population of the United States, and the fertility rates of the Negroes are apparently lower than those of the whites. The reported crude death rate of the whites is lower (6.9 in 1947) than the national average and than most southern cities, but the death rate of the non-whites is more than 25 per cent higher than the national average.

McMahan points to the use of charts as a great virtue of his work. In the reviewer's opinion, however, some of the charts are not very helpful. The use of spheres is not the best technique of indicating size of population. Further, when one uses spheres to indicate size as well as another characteristic (e.g. density of the population), the spheres, especially the solid black ones, obliterate the map boundaries (*see* pages 53 and 76). The intervals of discrimination for the characteris-

tics in these charts are not always well chosen. Figure 18, "Distribution of the Atlanta population aged 65 years and over, by census tracts," has solid black spheres in well over half the tracts, the black spheres indicating 4.0 per cent or over in the 65 years and over category. It is indicated in the text that 4.8 per cent of the population of Atlanta was 65 years and over in 1940, while 3.4 per cent were in this category in 1930 (for which a WPA chart is reproduced). A revision of the older chart was in order, either choosing new intervals that would have given a better breakdown in the highest category of the 1940 chart, or, at least, adding more intervals.

Again in terms of the charts used, McMahan reproduces a number of WPA charts, ostensibly for comparative purposes in considering the data. Since he uses a different technique of charting, comparisons are not easy. The WPA charts are generally easier to read. For example, the concentration of the population is best gotten from a straight density chart. It is not necessary to indicate the size of the population within each tract to show the concentration of the population.

The data are not always treated in the best manner, even within the limitations of an elementary study. In his analysis of fertility the author restricts himself too much to the use of the crude birth rate and the fertility ratio (children under 5 years of age times 1,000, divided by women of child-bearing age). He states that "the fertility ratio is the most practical and most reliable of our measures of fertility." Evidence of this is lacking. In comparing the use of the birth rate with the fertility ratio, McMahan notes that there is underregistration of births, but he does not similarly note that there is underenumeration of children in the census.

Sex ratios among church membership in selected urban populations are presented in Table X, page 139. For purposes of comparison, the sex ratios among church membership are much more meaningful if they are standardized on the basis of the sex ratios of the populations under examination. In his discussion of educational status, McMahan does not consider sex ratios by educational achievement, ratios which are important in the examination of trends in education.

Having gathered the available data by census tracts in

Atlanta, the author leaves it at that. There is little attempt to find relationship between the various population characteristics examined. At the same time, the author introduces his chapters with reasons *why* the data considered are important. These statements are often irritating, and certainly many are not established facts. The author would have made a greater contribution as a sociologist and demographer if he had carried out a detailed examination of one or two of the statements he makes. Examples of such statements are: "From an institutional standpoint, a shortage of persons in the productive years means lack of leadership in the community." (page 61) " . . . . The very type of life, conservative or radical, depends largely on whether there are concentrations of old people or of young adults." (page 62) "Occupation also effects [sic] fundamentally such demographic phenomena as life expectancy, rates of reproduction, and marital status." (page 127) Further, one can find an occasional *non sequitur* such as: "The Atlanta population fails to reproduce itself by at least one-third each generation; this is true even though the white population replaces itself to a greater extent than the Negro population." (page 143)

In general, this book is the most elementary sort of consideration of the people of Atlanta. Migration, which evidently is an important factor in the character of the population of Atlanta, is treated in only a most superficial way. Indeed, superficiality pervades the entire book. One might even question the choice of three southern cities for the comparisons carried out. The significance of the present status of the population of Atlanta might be more evident in comparisons with cities of the midwest or the north. Possibly the shallowness of the study is the natural consequence of dealing primarily with the most available census data, and of treating it in the simplest ways.

This book will probably hold little or no appeal for demographers; little new is to be found in terms of data, and nothing new will be found in terms of development or use of techniques. Local governmental officials and private citizens may find the book of interest as an easy source of population data. The teachers of population courses may find the book useful

as a guide of what to expect, in terms of paper and pencil work, from their students in a one year course.

EDGAR F. BORGATTA

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ESTIMATES OF DISABLING ILLNESS PREVALENCE IN THE UNITED STATES[1]

ESTIMATES of the prevalence of disabling illness in the United States in February, 1949, are presented in a recent article by Theodore Woolsey. Statistics are given for the civilian non-institutional population 14–64 years of age. Data are based on results of special questions on illness added to the regular monthly schedule of the Census Bureau Current Population Survey. The Survey was made by interviews in a sample of 25,000 households in forty-two states and the District of Columbia.

On an average week-day in February, 1949, an estimated 4,569,000 persons were disabled by illness or some condition preventing anything but occasional part-time work. Woolsey indicates that the prevalence of disability in February was probably above the average for the year.

Morbidity differed with the occupation, residence, race, age, and sex of the individual. For example, the prevalence of disability was higher among male workers employed in agriculture than among male nonagricultural workers, among housewives than among employed females, and among non-white persons (especially females) than among white persons. Prevalence of disabling illness among males was about the same as for females at ages 14–19, less than among females for ages 20–44, and higher than among females at ages 45–64 years.

Prior to the interview, 45 per cent of the disabled had been disabled over six months. Only one-fourth of the disabled had suffered disability of not more than a week. Such statistics provide some indication of the extent of coverage that would be involved in a permanent disability insurance program providing

[1] Woolsey, Theodore D.: Estimates of Disabling Illness Prevalence in the United States, Based on the February, 1949, Current Population Survey. *Public Health Reports*, February 10, 1950, 65, No. 6, pp. 163–184.

payments to persons with disability lasting six months or longer. Of course, coverage would be reduced by restriction of the program to persons employed prior to disability.

The article by Woolsey shows that a large body of morbidity data can be obtained by addition of a few questions on illness to a regular Census Bureau survey. In the future perhaps additional morbidity surveys can be made in conjunction with statistical studies designed to provide other types of data. Such cooperative studies would facilitate analysis of relationships between different types of data, such as statistics on morbidity and occupation. Joint studies might also prevent duplication of effort involved in selecting a sample population, interviewing families, and collecting basic information about surveyed individuals. Cooperative studies are, of course, limited by such factors as willingness of families to furnish answers to long questionnaires, ability of interviewers to do a good job of obtaining various types of information, and the capacity of statistical computers and analysts to handle large masses of data.

ELIZABETH H. JACKSON

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